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C. WOODY THOMPSON

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THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS

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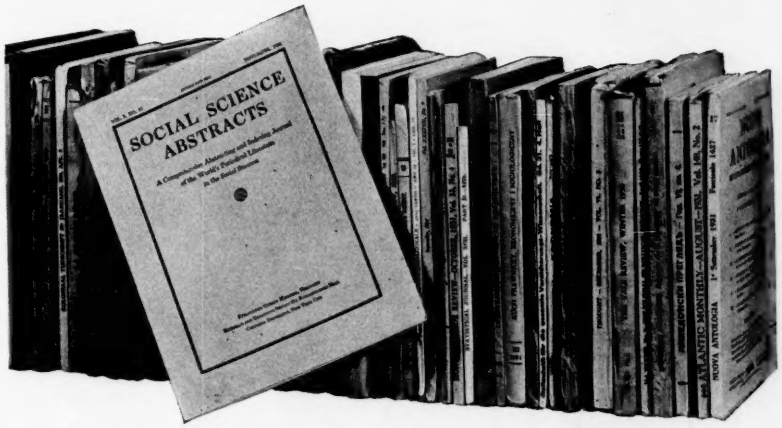

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THE JOURNAL OF
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1932

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Valuation for Rate-Making, 1932

By C. WOODY THOMPSON

FOR what reason, you may ask, can there be any plausible excuse for plowing over this much plowed and harrowed field of valuation? The answer consists of two reasons: Mr. Justice Cardozo and depression. Mr. Justice Cardozo succeeds to the liberalism of Mr. Justice Holmes, thus maintaining the liberal balance in the Supreme Court of the United States. As one writer suggests, "His may be the hand to write a Supreme Court opinion sustaining the original cost theory, not as a dissenter, but as a voice of a newly organized majority of the Supreme Court of the United States."[1] Whether this prediction becomes a reality or not, the depression certainly will inject new vitality into the valuation question.

An appropriate beginning of our task is to review the years since 1918, examining the remarks of jurists and others relative to the probable future trend of prices. From the vantage point of hindsight, it will be quite obvious that most of them were misled, which misconception may account for the emphasis given to the cost of reproduction theory. Will this error in judging the future trend of prices arise to haunt the courts and the utilities in the next 10 years? This is the question to which this paper is addressed.

A Changing Price Level

In an early case decided in the Circuit Court of the United States in 1919[2] Judge Stone said, "No one can say what degree of depression may ultimately come, but it is reasonably certain that the cost of the properties now under consideration will never again approximate figures prevailing in the years before the World War." In the Galveston Electric case,[3] decided in 1922, the notion of a "new plateau" of prices was first recognized by the Supreme Court. The conditions of price upheaval which accompanied the War seemed by that time to have given way to a state of *normality*, which caused many jurists and economists alike to view the price

[1] A review of an article on Judge Cardozo, *Public Utilities Fortnightly*, March 31, 1932, p. 417.

[2] *Joplin & P. Ry. Co. v. P. S. Com.*, 267 Fed. 584 (1919).

[3] *Galveston Electric Co. v. Galveston*, 258 U. S. 288 (1922).

level following 1921 as relatively permanent. By the time the Indianapolis Water case[4] presented itself for decision in 1926, the illusion of permanence was complete. Mr. Justice Butler, speaking for the majority, said that "it does not appear probable that there will be a substantial change of prices," going to the extreme of viewing as "relatively permanent" the price levels of 1926.

On the theory that prices were then stabilized upon a new high plateau, many utilities quickly seized upon cost of reproduction as the proper valuation doctrine. On every hand, in court and out, their representatives urged the equitableness of this position. When attacked by their opponents, the advocates of prudent investment, they found it easy to hide behind their constitutional right of demanding valuations on present values.[5] Although the Supreme Court has never said that "value is tantamount to reproduction cost," yet by its actions it has given this theory at least a dominant place in valuation proceedings.

Prophets were not lacking, however, during these years of post-war prices, to warn of the unsoundness of the theory of a new price plateau. Mr. Justice Brandeis, in his famous opinion in the Southwestern Bell case,[6] pointed out that such an assumption as a new plateau of prices has "no basis in American experience". Commissioner Eastman, of the Interstate Commerce Commission, dissenting in the San Pedro, etc. case,[7] criticized cost of reproduction, saying, "As a mater of fact, a period of falling prices, not immediate but in due time, is probable . . . " Other such forecasts of the present fall in prices could be added, but they are superfluous. These quotations, viewed in the light of 1932, show a true appreciation of the problem of price changes, but like most warnings, they fell upon deaf ears.

To realize fully the extent to which prices have declined since the summer of 1929, one should have before him a chart of prices. The wholesale price level has fallen below pre-war, or 1913, levels. On the basis of 1926 prices, the present level is off more than one-third. For specific items, the situation is much worse. Farm prices are at their low point in many decades, with wheat and corn prices in particular falling to new all-time lows. Copper, a vital necessity in the electrical utility, which in 1920 was selling for 23 cents and more a pound, now sells at less than 6 cents.

Of course, the Court is more concerned with the prices of materials and labor costs incurred in utility construction, than in the mere trend of general prices. As Mr. Justice McReynolds has expressed it, "It is impossible to ascertain what will amount to a fair return upon properties devoted to public service without giving consideration to the cost of labor, supplies, etc., at the time the investigation is made".[8] The index of construction costs for industrial buildings, prepared by the American Appraisal Company, illustrates the changing value of one major item of utility investment. This index uses the building costs of 1913 as a base, and follows

[4] *McCardle v. Indianapolis Water Co.*, 272 U. S. 400 (1926).

[5] Many examples of this method of defense are to be found in the *Report* and *Hearings* of the New York Commission on Revision of the Public Service Commissions Law, 4 vol., 1930. As this investigation shows, the cost of reproduction theory was often used as a foil in case of an attack upon utility rates. According to the testimony of Mr. Prendergast, then Chairman of the New York Commission, in most of the informal negotiations for rate reductions the investment was accepted as the proper basis of calculations. See his testimony in the *Hearings*, vol. 1, pp. 295-300, 359, 360.

[6] *State of Missouri ex rel. Southwestern Bell Tel. Co. v. P. S. Com. of Missouri*, 262 U. S. 276 at 303 n. (1923).

[7] 75 I. C. C. 463 (1923).

[8] Southwestern Bell Telephone case, *supra* n. 6 at 287.

the common practice of equating these costs to a 100. In each year after 1913 building costs increased until the peak was reached in 1920, when the monthly average for a brick, steel-frame type of structure stood at 256.7. Thereafter, the index fluctuated up and down, standing at 191.0 in 1930. In 1931, it was 167.5; and in April, 1932, the latest month for which figures are available, it stood at 153.[9] Thus, while wholesale prices are slightly less than pre-war, building costs for all types of industrial structures average about 50% above pre-war. Both indices, however, are decidedly on the downgrade, and at present (May, 1932) there is but slight indication that the bottom has been reached.

Valuation and the Price Level

As the depression has worn on, two questions have been suggested to the writer. First, what will be the result of such price declines if the utilities are valued by the cost-of-reproduction theory? Second, what will be the probable attitude of the Supreme Court toward attempts of state commissions to apply this doctrine?

First. No better statement of the dangers of a falling price level to utility values can be found than that made by Mr. Justice Brandeis.

"If replacement cost should become the measure of the rate base, the return on enterprises entered upon after 1914 would, obviously, be imperiled. And a serious decline of the price level would subject the return of many utilities established earlier to like dangers. A collapse of utility values might follow. And the impairment of public utility credit might be followed by the cessation of extensions and new undertakings."[10]

The utility which would be the hardest hit by the use of reproduction cost, if the present fall in the price level continues, is electricity. At the end of 1931 the investment in this utility was estimated to be near 12 billions of dollars. Of this total, 9 or 10 billions have been invested in this utility since the peak of prices in 1920. A rigorous application of cost of reproduction, or as Mr. Justice Butler phrased it, a valuation "on the basis of prices prevailing on the effective date of the order,"[11] would result, probably, in a final figure somewhat lower than the investment. It is not too much to conclude that this 12 billions might not have a present value in excess of 10 or 11 billions. Two other utilities, the telephone and natural gas, stand in the same danger because the majority of their investment is less than 12 years old. So far as the railroads are concerned, the greater portion of their investment antedates the Great War; consequently, their position would not be nearly so precarious. It would appear, therefore, that a rigorous application of the cost-of-reproduction theory to the utilities, based upon spot prices of 1932, would so reduce their rate-bases, and consequently their earnings, as to impair seriously the values of their common stocks.

Second. Will the Supreme Court of the United States approve a valuation based upon the cost of reproduction or at least a valuation in which it has been given "dominant weight"? The answer to this question turns upon two other secondary or corollary questions. In the first place, assuming that the Court has taken a position in favor of cost of reproduction, will it be bound to follow its previous decisions under the rule of *stare decisis*? And, in the second place, what has been the position of the Court;

[9] *Clients' Service Bulletin*, vol. 9, No. 2, issued in May 1932 by the American Appraisal Company of Milwaukee.

[10] Southwestern Bell case, *supra* n. 6.

[11] Indianapolis Water case, *supra* n. 4.

has it squarely placed itself on record as approving cost of reproduction as the rule of utility valuation?

The first of these corollary questions has no answer. Regardless of what one may say about the rule of *stare decisis*, the facts are that in many instances the courts have reversed their former decisions, refusing to be bound blindly by the decisions of the past. As examples, notice that in *Munn* v. *Illinois*,[12] the Court said plainly that the legislature was the sole judge of the reasonableness of its rate statutes. In the Peik case,[13] a Wisconsin law prescribing maximum railroad freight rates is construed to apply to the Wisconsin part of all interstate hauls which originate or terminate in the State. Thus, on an interstate shipment from Superior, Wis., to Peoria, Ill., or vice versa, that part of the haul from Superior to the state line would be subject to the rates prescribed by the Wisconsin statute. Both of these early positions have been discarded by the Supreme Court, as a reading of the Reagan case[14] and the Wabash case[15] will show. The Court does not follow the rule of precedent with blind faith. In reference to our question of following the rule of cost of reproduction, the consequent evils of so doing might cause the Court to change its views on valuation theories.

The Supreme Court and Cost of Reproduction

It should be observed that the above discussion assumes that the Supreme Court has regarded utility valuation as controlled by cost of reproduction, or at least has given this theory such weight as to amount to the same thing, for all practical purposes. But do the facts warrant this assumption? The only thing certain is that the Supreme Court has never adhered to any single valuation theory, to the extent of saying so point blank. Unless we are satisfied with this answer, and I for one am not, then can we by implication discover the stand of the Court? This is the next and most important task.

Let us begin our search with the *Minnesota Rate Cases*.[16] In reference to valuation, Mr. Justice Hughes said,

> "As the company may not be protected in its actual investment, if the value of its property be plainly less, so the making of a just return for the use of the property involves the recognition of its fair value if it be more than its cost. The property is held in private ownership and it is that property, and not the original cost of it, of which the owner may not be deprived without due process of law."

These two sentences of Mr. Justice Hughes certainly imply that, if as a result of price declines present values are less than the original cost, such present values are allowable in the determination of a rate-base. The expression "property, and not the original cost of it" scarcely permits of any other interpretation. Although this decision was made in a period in which price levels were rising, thereby giving to the utilities an increased valuation, certainly logic demands that the same rule apply in periods of price declines. In a still earlier case, the First Consolidated Gas case,[17] the Court significantly said:

> " . . . the value of the property is to be determined as of the time when the inquiry is made regarding the rates. If the property, which legally enters into the consideration of the question of rates, has increased in

[12] 94 U. S. 113 (1876).

[13] *Peik v. Chicago and North Western Ry. Co.*, 94 U. S. 164 (1876).

[14] *Reagan v. Farmers' Loan and Trust Co.*, 154 U. S. 362 (1894).

[15] *Wabash, St. Louis and Pacific Ry. Co. v. Illinois*, 118 U. S. 557 (1886).

[16] 230 U. S. 352 (1913).

[17] *Willcox v. Consolidated Gas Co.*, 212 U. S. 19 (1909).

value since it was acquired, the company is entitled to the benefit of such increase. This is, at any rate, the general rule."

What other interpretation is possible than that, if as a general rule the utility is entitled to any increase in value during periods of rising prices, it must likewise suffer any decreases in that value during periods of falling prices? Further, does not this decision call for spot prices? Such would seem to be the case, especially when this case is followed by the Indianapolis Water case.

These cases, occurring in the years before the War, do not offer indisputable evidence of the proposition that the Court will apply the theory of cost of reproduction in periods of falling prices, though they point to that conclusion. Skipping to the Indianapolis Water case,[18] we find the best statement of the position of the Supreme Court. Quoting from the opinion of Mr. Justice Butler, "It is well established that values of utility properties fluctuate, and that owners must bear the decline and are entitled to the increase." It will be noticed that our deduction from the *Minnesota Rate Cases* concerning price declines is here verified in no uncertain terms.

In the Indianapolis case the Indiana Commission had used cost of reproduction, applying not the spot prices at the time of the controversy (1923), but a 10-year average of prices ending with 1921. Mr. Justice Butler overthrew this method in the following language:

" . . . the price level adopted by the Commission—the average for ten years ending with 1921—was too low. And it is clear that a level of prices higher than the average prevailing in the ten years ending with 1923 [the date of the valuation in question] should be taken as the measure of value of the structural elements on and following the effective date of the rate order complained of."

[18] *Supra*, n. 4.

Furthermore, says the Justice, valuation orders must be made in the light of the immediate future trend of prices.[19]

There is not much doubt as to the meaning of the language of Mr. Justice Butler. In short, if a valuation of any utility were to be made in 1932, the 1932 prices—spot prices—of labor, materials, and construction costs must be used, not disregarding a reasonable forecast of price trends for the near future. Remembering the precipitous decline in costs since 1929, a consideration of the near future would justify even lower values than those calculated upon the 1932 levels. Let us not forget the classic phrase, "the owners must bear the decline." Under this theory, then, and if applied by the commissions without limitation, some lean years are ahead for common stockholders. Following the rule of *stare decisis*, it seems almost a foregone conclusion that any order giving "dominant weight" to cost of reproduction using spot prices, though utility credit be impaired, will be sustained.

Other Considerations

Fairness and a desire to know the whole truth, however, and not the desire to make a case, must govern our final conclusions. In other valuation proceedings the Supreme Court has been less definite and more guarded, as if purposing to leave open a graceful exit in the event that at some future time the application of their doctrines should become embarrassing. Such an escape is afforded through these words in the *Minnesota Rate Cases:* "The ascertainment of . . . value is not controlled by artificial rules. It is not a matter of formulas, but there must be a reasonable judgment having its basis in a proper consideration of all relevant facts."

[19] For the first enunciation of this notion of futurity, see the Southwestern Bell case, *supra*, n. 6 at 288.

In the O'Fallon case[20] the Court merely reproved the Interstate Commerce Commission for failure to give *any* weight to cost of reproduction, which, as it said, is one of the elements of "fair value." The Commission had considered the various elements in value and, following the dictum of *Smyth* v. *Ames* that these should be given such weight as was just and right, concluded that equity ruled out of consideration cost of reproduction. "The prime requisites for the rate-base, as we think we have made clear, are stability, reliability, and relative ease of adjustment to property changes."[21] Obviously, reproduction cost has no place under this formula. In the language of the Court, "The weight to be accorded thereto is not the matter before us . . . Congress has directed that values shall be fixed upon a consideration of present costs along with all other pertinent facts; and this mandate must be obeyed."[22] This decision seems to indicate that, if *some* weight be given to cost of reproduction, the Commission order will stand. Thus, the clearcut decision of the Indianapolis Water case is clouded by this later one. It may well be that the O'Fallon case will be the basis for reversing a commission which gives *too much* weight to cost of reproduction, if the resulting value or rate-base is materially less than the actual, legitimate investment.

In this connection, Mr. Chief Justice Hughes, when Special Master for the New York court in the Brooklyn Borough Gas Co. case[23] had the following to say in reference to valuation:

"To base rates upon a plant valuation simply representing a hypothetical cost of reproduction at a time of *abnormally high prices* due to exceptional conditions would be manifestly unfair to the public, and likewise to base rates upon an estimated cost of reproduction far lower than the actual bona fide and prudent investment because of *abnormally low prices* would be unfair to the company." (Italics mine.)

This quotation suggests that in order to sustain a valuation by use of reproduction cost which was less than the investment, the new low price level must contain an element of normality. As any student of economics knows, the notion of normality is very illusory and may lead to the conclusion that all times and conditions are abnormal. As a practical problem, however, the above statement simply means that, until the present low prices appear to be fairly permanent, they may not be used to justify a valuation below the prudent investment. When these new lows seem to be more or less permanent, such a valuation might then stand. Of course, these conclusions are based upon the assumption that Mr. Hughes and at least four other Justices accept this position of 1918.

In summary, the Supreme Court has never, in so many words, adopted cost of reproduction, in any form, as the sole element of value for rate-making. In fact, the Court has refused to approve any single theory of valuation, insisting that valuation is not a matter of rules or artificial formulas. In no case has it ever been asked to approve a value based solely upon this theory. Every case has involved a rate-base which was a compromise between the extremes of investment and reproduction. Even in the Indianapolis Water case the full cost of reproduction was apparently not asked for by the utility. Taking the figures as given by Mr. Justice Butler as

[20] *St. Louis & O'Fallon Ry. Co. v. U. S.*, 279 U. S. 461 (1929).

[21] *Excess Income of St. Louis & O'Fallon Ry. Co.*, 124 I. C. C. 3 (1927).

[22] O'Fallon case, *supra*, n. 20.

[23] *Brooklyn Borough Gas Co. v. P. S. Com. for the First Dist.*, P. U. R. 1918 F 335.

correct, the 1923 prices were 32% higher than the Commission valuation of $16,455,000. If this valuation be increased by this percentage, it becomes just short of 24 millions. But the Water Company asked only for a valuation of $19,000,000, which is considerably less than what they might have claimed. The concluding sentence of the decision is: "On a consideration of the evidence, it is held that the value of the property as of January 1, 1924 and immediately following was not less than $19,000,000." These calculations must not be accepted without reservation, because Mr. Justice Brandeis, dissenting, seems to regard the valuation allowed as the full cost of reproduction. Our position would be considerably stronger had the Supreme Court ever allowed the undisputed full cost of reproduction. In passing, it should be remarked that the lower federal courts, judging by their decisions, seem to regard the doctrine of reproduction cost to have been established as the dominant rule of valuation.

The Supreme Court, however, has leaned so far toward reproduction as the dominant element in valuation that the rule of precedent would seem to force it, unless the liberal minority captures the present majority domination, to approve a commission valuation order based on present low prices. Its only way out of such a logical result is either to refuse to be guided by the precedent of the Indianapolis Water case or else to fall back upon the unworkable doctrine that valuation is not a matter of artificial rules. To the writer it seems that the Court will be reluctant to permit the impairment of the credit of utilities which would follow if a cost-of-reproduction valuation was materially lower than the prudent investment. Considerations of public policy often do, and probably should, outweigh legal logic.

If a thorough-going application of cost of reproduction should operate to impair utility credit, and thereby be discarded by the Supreme Court in favor of prudent investment or any other rule, no better proof of its practical weakness as a valuation principle could be asked. This action by the Court would be a direct admission that cost of reproduction is workable only in periods of rising or high prices. It is a poor rule that does not work under all circumstances, and so cost of reproduction should be discarded in favor of a better one, such as prudent investment. If it be objected that valuation is a "practical problem" and not a matter of rule or theory, such an objection begs the question. The commissions need a working rule to guide them. Their valuations made in the light of "practical judgments" have been too often reversed by a court which had a different "practical judgment." Rather than continue on this basis, it would be better to follow a defective rule such as cost of reproduction in all periods of prices, though the rule of prudent investment would be the better choice for an all-time principle of valuation. More important than any specific theory is some definite rule which will serve as a guide to commission valuation proceedings. When one considers how far the Supreme Court has gone in the direction of cost of reproduction, regardless of its disclaimer to the contrary, it may almost be concluded that the Court has practically set its approval on this rule.

Of course, it must be recognized that the problem of logic and consistency is not involved if the position of Mr. Justice Brandeis, as expressed in the Galveston, Southwestern Bell, and O'Fallon cases, becomes the dominant position of the Court. The previous discussion assumes that the majority insistence upon "fair value" with strong

leanings toward cost of reproduction continues to be the majority position. The Brandeis theory of valuation for rate-making is prudent investment, and would be applied by him in periods of both high and low prices.

At this juncture, the question may be raised as to the future attitudes of the regulatory commissions on valuation. At heart, some of the commissioners probably favor prudent investment, and they have tried to give no more recognition to reproduction than barely enough to escape reversal in the federal courts. Since many of them have been forced to give some weight to cost of reproduction, will they now retaliate by using this theory when its rigorous application will work disadvantage to the utilities? In other words, will they fix values at sums less than the prudent investment? One clew is found in an opinion of Commissioner Meyer, writing the decision of the Interstate Commerce Commission in the O'Fallon decision. Pointing out the fallacies of reproduction cost, he states that, if price levels should fall, the logical result would be to reduce the rate-base, to the loss of the stockholders. If as a consequence railroad credit were impaired, the Commissioner believes that public policy would forbid such a logical application of the theory. For this reason, desiring a rate-base which is fair in high- and low-price periods, he argues for the actual legitimate investment. Calling the valuation rule of *Smyth* v. *Ames* capricious, the Commissioner concludes that

"There is, in our judgment, no intermediate process [between investment on one extreme and reproduction on the other] which is capable of being applied by any rule independent of the caprice of those who apply it".

This is essentially the position of Commissioner Eastman of the same Commission.

The Chairman of the Maryland Commission, Harold E. West, has made his position plain. He had been confronted with the proposition that the rule of utility valuation should be investment or reproduction, whichever was the higher; in other words, in periods of high prices, cost of reproduction should be the rule, while in periods of low prices investment should prevail. In reply, Commissioner West has said:[24]

"So far as the Public Service Commission of Maryland is concerned, it will never accept any such doctrine. We will follow in the future, as we have always tried to do in the past, the law as laid down by the Supreme Court. We shall not attempt to change the Supreme Court's rulings which, in effect, have made reproduction cost the dominant element in finding fair value, in order to let the utilities under our jurisdiction earn returns on the highest rate-base possible. If commodity prices decline materially within the next few years and utilities are faced with reductions in their rate-bases because of the following by commissions of the reproduction cost theory, they will be but reaping the harvest which they themselves have sown."

Commissioner West goes on to say that any well managed operating company has nothing to fear from such a policy, but some of the utility holding companies, because of their past financial methods, stand to be damaged seriously.

Conclusions

So far the writer has attempted to keep his opinions and hopes out of the discussion. In concluding it may be appropriate for him to summarize his own views in the light of the above facts.

First. The Supreme Court does not hold blindly to the rule of precedent if public policy dictates otherwise. It is hardly conceivable that public policy

[24] "Reproduction Cost still Determines Fair Value," *Electrical World*, September 19, 1931; reviewed in *Public Utilities Fortnightly*, October 29, 1931, p. 554.

would approve of a valuation theory which would damage the credit standing of the utilities, especially the operating utilities. This, in itself, is sufficient evidence of the unsoundness of cost of reproduction as a theory of valuation.

Second. The Court has not said that it regards cost of reproduction as the sole element of value. It has consistently insisted upon the rule of the *Minnesota Rate Cases* that valuation is not a matter of artificial rules and formulas, but a judgment based upon all relevant facts.

Third. As a matter of practice, however, the Court, in the Indianapolis Water case in particular, practically placed its approval upon the exclusive use of the cost-of-reproduction theory based upon spot prices.

Fourth. In spite of the position taken in the Indianapolis Water case, the Court has left the door open sufficiently wide to forbid a too rigorous application of the reproduction doctrine.

Fifth. The failure of the Supreme Court to adhere to any one theory of valuation has done more than anything else to keep valuation proceedings in their present unsatisfactory state. The rule of *Smyth* v. *Ames* is no rule in the sense of furnishing a workable yardstick to the utility commissions. This fact is recognized by both sides in this valuation question. It would seem that the Supreme Court would eventually recognize the weakness of its present position, and adhere to a more definite rule such as cost of reproduction or prudent investment. Either one of these theories would be far more satisfactory than the present vague doctrine of "fair value." The uncertainty of the present position of the Court is that it talks about "fair value," while it is in effect following, in part at least, the theory of cost of reproduction. Which action are we to believe expresses the true intention of the Court?

As has been pointed out elsewhere, any rule which will eliminate some of the present high litigation costs and uncertainty is to be welcomed, even if that rule be regarded as economically the less desirable of two alternatives. The writer hopes that the Brandeis-Holmes-Stone position of prudent investment becomes the rule of the Court. Such may become a reality in the light of the present membership of the court.

Sixth. So long as the Court clings to the fair value rule of *Smyth* v. *Ames*, the commissions unless blocked by some future decision should apply with a rigorous hand the cost-of-reproduction theory, using in their valuation work the prices prevailing at the time of the investigation. Since the utilities have been so insistent, during the past 15 years of high prices, upon the righteousness of this rule, they ought in fairness be forced to follow the same rule in periods of low prices. At least, they ought to have enough of it to cause them to accept voluntarily such a plan as contract valuation based upon prudent investment. If the Court persists in following the unworkable rule of fair value, this last suggestion seems to offer the only way out of the present unsatisfactory state of valuation procedure, unless that alternative plan—government ownership—should replace private ownership and operation.[25]

[25] For fear of being misunderstood, the writer wants to emphasize that his position on this last item is based upon the assumption that the Supreme Court continues to adhere to its present rule of fair value. To his way of thinking it would be far preferable to have the Court adopt point blank some rule or method of valuation which is workable in actual practice. In the event of such an adoption, he prefers prudent investment. But rather than hold out for this particular theory, he would welcome any theory which would take the uncertainty out of the present position of the Supreme Court.

The Ice Industry: Its Economics and Future

By L. B. BREEDLOVE

THE water-ice industry is one of the older industries which, when the malaria of overproduction has fully developed, must face the inroads of new commodities or services into the common market. The long unbridled liberty to enter the producing field has lead to a surplus of producers and to a struggle between ice producers which may properly be called "juggle" competition. The continued failure to adopt correct merchandising policies has permitted the crowding in of the small but surplus producer and placed the industry in a weakened position to resist the "encroaching" competition of substitutes sold by enterprises which have extended their function in order to increase the distributive outlets for a particular service. The demand for public utility status has focussed attention on the ills of overproduction in the industry. The social problem which presses for solution involves a consideration of methods for eliminating the "juggle" competition without resulting injury to the public interest as the struggle with the "encroaching" competition continues.

During the 15 years previous to 1926, the producing capacity in the water-ice industry was nearly tripled and in that year, which had unusually mild summer temperatures, the industry experienced its first decline in annual sales volume. About the same time the popularity of the household mechanical refrigerator unit was clearly demonstrated and the prospect of a large loss of ice sales in the domestic market was apparent. Under the impetus of a tremendous advertising program, the sales of mechanical household units have forged ahead at increasing rates each year until 1930 when the general depression slowed down the rate of increase. Yet the older industry as a whole continued through the years 1927 to 1931 to secure a healthy increase in annual sales. Numbers of the better grade domestic customers were lost to mechanical refrigeration and their places filled by a larger number of new but lower-quantity domestic users. Sales for car icing and to wholesale buyers at the ice plants were expanded. However, the average selling price was declining and the return to capital was diminishing. For the year 1931 the increase in gross tonnage of ice sales was very slight, the loss of domestic customers was not so rapid, and the increase in new domestic customers was only slightly retarded, but the average sale per customer was lower, car icing declined, and wholesale users took less.

Many claim that the industry has merely been picking up the backwash of the campaign of public education carried out by distributors of mechanical household refrigerators and that the present "lull" in such inroads is not a seventh inning period, as it is impossible to adjust operating policies to meet the various forms of competition in a manner to provide adequate return to capital. They insist that public utility regulation would result in higher prices and cause more patrons to turn to the mechanical unit. Assuming, as *Time* does, that the reader always comes late to the human ball game, we will review the previous innings before considering the present problems which confront the industry.

Development of the Industry

Evolution in the Type of Plant. When the water-ice industry began, the water supply of most cities contained ingredients which made it extremely difficult to produce ice that was salable in competition with natural lake ice. In the electric plants of that day steam, after expansion in the engines, was exhausted to the air; this by-product could be condensed to supply distilled water to form ice, with an enormous saving in fuel. Economy in the operating staff was secured by the combination plant, for, with one ice puller, the power-plant force could operate the combined plants. In 1910 probably 60% of the electric generating plants contained ice plants in conjunction. But ice was a secondary product; the generation of electricity had spectacular appeal, while the simple conversion of water into ice aroused little interest. The by-product was disposed of in the easiest way, which was at wholesale to others who would find the consuming market. The adoption of condensing equipment so improved the economy of generation that it was unprofitable to utilize exhaust steam for ice-making, and economies in the operating staff were not to be had. The now divorced ice plant had to generate its own steam supply, thus materially increasing operating costs. In the larger cities the adoption of methods of water supply purification made it possible to adopt the compression system thereby utilizing undistilled water for ice-making. As the power requirements of the ice plant fitted nicely into the summer "valley" in the load on the central plant, utility companies in large cities offered low electric rates. The ice companies established delivery routes to serve only districts where the commercial customers were located; all others were left to secure delivery from peddlers or to come to the plant for it.

In the smaller cities the inefficient power plants rendering electric service were being replaced by service over transmission lines from large efficient plants. Financial organization, in developing interconnected systems, rapidly acquired the electric properties in towns, the majority of which had combination plants, and it was necessary to take possession of the step-child, the ice division. Interconnection brought economy in electric service but the combined ice plant operating on distilled water was placed in an untenable position.[1] Sale of the ice plant without heavy loss was generally impossible and the owning companies were forced to electrify such plants. Fortunately, plant water-treatment methods were developed to an extent that permitted their use in ice-making with most of the available waters.[2]

The holding companies brought to bear the abilities of engineers specializing in plant design and operation. The type of plant evolved was well standardized as to equipment and operating methods, the variations in plants arising largely from differences in ground plot, location in town, and building requirements. The old steam plants, removed from commercial and residential districts, were first converted to "raw water" electric plants. That this type of plant could be placed in residential districts, thereby

[1] One typical example might be cited. Previous to transmission line service, the combined plant produced ice at a labor cost of 53 cents and an overall manufacturing cost of $1.86 per ton; with the steam power side shut down, labor cost was $1.82 and overall manufacturing cost was $4.74 per ton.

[2] As the electrification program began, overall manufacturing costs per ton averaged $3.80. Each year has seen a decline until a manufacturing cost of $1.53 per ton was reached in 1931. This statement is based on the operating results of 148 plants, the aggregate capacity being 7,850 tons per day.

facilitating delivery and attracting platform trade, was a fact overlooked and the practice of choosing industrial sites for new plants continued. The delivery and sales aspects of the business continued to drift along pretty much as they were.

The Shifting in the Market. Meanwhile advances in refrigerating plant engineering made possible a push from the market side. Hotels, clubs, and institutions had generally installed small ice plants to utilize the exhaust steam from their isolated generating plants and to save the large portion of the ice price occasioned by street delivery. As their isolated plants were shut down to take central station service, the electrically driven "raw water" plant fitted into their scheme. Such plants of even lower daily capacity could be installed. The larger users were quite generally lost to the small isolated plant. The electrically driven ice plant, which had been cut down further in size, was made applicable by addition of automatic control features to the refrigerating needs of the meat market, drug store, and other commercial customers. The water-ice producer was fairly pushed into the domestic market for ice. The larger producers began to establish delivery systems on a broader service basis but continued the old pricing system. Attempt was made to drive the peddler from his market. The domestic field was one of large potentialities and the ice business was discovered by promoters.

Many, with the help of investment bankers, gathered ice plants into chain management groups. Origination of electric utility securities was rapidly being confined to a few institutions and many investment banking houses were anxious for the profits of origination in utility-type issues. The ice industry, it was urged, was the next public utility. It was claimed that economies of management and operation, comparable to those in the electric utility, were to be obtained. But no actual test to determine the economies had been conducted previous to public financing, as in the electric utility. The concentration movement lead to prices for going ice plants, which dominated their market, based on expected economies and increase in sales. Many mergers were effected and the average capital value of the plants affected increased from about $1,800 per ton producing capacity in 1922 to about $3,700 in 1926.[2a]

The small enterpriser saw that he could build a small, efficient electric plant in a residential district and, as the chief producer was basing delivery on less favorably located and often high-cost plants, that he could sell to peddlers and platform customers, even at lower prices, with ample returns to his capital. During the era of ease in disposing of equipment notes, manufacturers of ice-making machinery aided the establishment of small, efficient, electrically driven plants and the number which crowded into the markets in less than 10 years was sufficient nearly to double the producing capacity in the industry. Peddlers increased by legions. Peddlers and the small plant were able to take from the delivery system all the customers they could serve in the hot months. These small dealers "folded up" at the end of summer and allowed the large producers to operate routes at a loss during the cool months. Then ensued an era of bitter intra-industry competition which still persists. Producers were quarreling over visible demand rather than banding together to develop policies to entrench themselves in the sales and delivery sides. The larger competitors built cash-and-carry stations to offset the platform market of small

[2a] Data taken from studies of a number of mergers.

producers. Price cutting was quite general. Any service which would secure a customer was cheerfully met; effort was made to hold gross income, regardless of the net income produced. Every effort to sell to peddlers was exerted. The peddler fought to lower his buying price, and to get retail customers from the delivery system. The struggle lowered prices and demoralized delivery service.

The Present Situation. About that time the big market push began. Automatic refrigerating plants, having been merely cut down to a smaller size, invaded the domestic field. The continued failure to exploit the market for the refrigerating services of ice placed the water-ice industry in a vulnerable position to meet competition in the domestic market introduced by the mechanical unit. The industry rushed out to tell everyone that the household mechanical refrigerator was not a success in comparison with the ice refrigerator. But soon it was evident that the housewife did not believe the story and ice companies began to face seriously this competition.

About 2,700,000 mechanical household refrigerator units are now in daily operation in the homes of this country. More units have been sold but a large number were replacements, particularly in the early years, and many have gone into export trade. The units now in operation represent a loss in annual sales of nearly 9,000,000 tons to the water-ice industry. Yet, the older industry as a whole has been able to recoup that loss and to increase tonnage sales in the domestic field slightly better than 5% each year from 1927 up to 1932. The saturation[3] of the household mechanical units varies from 3% in the smaller towns to 20% in the larger cities; the percentage of non-users and low-quantity users is higher in smaller towns than in cities, consequently it is easier in the smaller towns to find new customers or increase the consumption of existing customers to recoup losses.

Capital began to flee from the water-ice industry in 1926[4] and the period of readjustment to the "encroaching" competition in the domestic field began about that time. This was not without benefit to the industry, as it prevented the overexpansion from being further increased during the boom years of 1928 and 1929. The annual sales of household mechanical units during the last six years have been 210,000 units in 1926, 390,000 in 1927, 560,000 in 1928, 820,000 in 1929, 850,000 in 1930, and 945,000 in 1931. Thus far the annual rate of sales in 1932 has been 820,000 units, with sales slightly better in small towns than in cities.[5] Undoubtedly many customers are staying with the ice company because of reduced income, yet the depression has only slightly retarded the increase in the number of new ice customers. For the last several years the increase in the tonnage sold has been confined to the peak-months' users and the average annual consumption of domestic customers has shown only slight improvement. This has shoved each company deeper into the lowest profit margin business. While the depression has cut down the loss caused by removal of the better customers, it has increased the tendency on the part of the majority of present customers to purchase at the cash stations for a lower price, to take a smaller quantity, or to buy from peddlers at a

[3] Number of household mechanical units installed in relation to the total number of homes having electric service.

[4] The investment market refused to absorb ice company securities in this year.

[5] Data taken from various sources.

lower price. This has intensified the price competition among producers.

The quantity of ice used for car icing has gone up an average of 6% a year for the 12 years previous to 1931, largely because of the continued increase in the consumption of perishable food products drawn from an ever spreading area. Some car-icing plants have experienced a lower rate of increase in demand and others a much higher rate of increase. Traffic flow has changed much in recent years with the development of new districts producing special crops. Despite experiments with dry ice and silicia gel refrigeration, railroads and shippers continue to sign 10-year contracts for car icing. The high cost of equipment, expensive maintenance, heavy unloaded weight, and necessity for close regulation and service points are the reasons against adoption of the new methods of refrigerating perishable freight. The individual ice company is helpless to avoid the fluctuations in this specialized market, small for most ice producers, and can only struggle against competitors for the demand as it comes.

The capitalization of the water-ice industry in this country at the end of 1931 was in excess of $1,300,000,000.[6] The number of companies in the industry totals nearly 2,000.[7] The total daily producing capacity is 334,000 tons in 8,100 plants, of which 5,300 are of the electric "raw water" type.[8] Accurate statistics are not available but the best estimates show that upwards of $300,000,000 of senior securities have been sold to the public by ice companies.[9] Many utility companies, which have sold senior securities, own ice plants, but it is impossible to determine the amount of such securities represented by ice plant investments. It is safe to say that the ice plants operated by such organizations are not providing a fair return on the investment. The bonds and notes issued by ice companies in the larger cities are now, in the majority of instances, in default as to principal and interest, although a few companies, having low capitalization, superior management, and engaged in the marketing of a product complementary to ice, are still earning dividends on the common stock. The companies serving a number of smaller towns are generally earning enough to support the outstanding senior securities; variations in capitalization, quality of management, and characteristics of the towns served are sufficient to cause this class group to range from those at the head, which are earning inadequate dividends on the equity stock, to those at the foot which are barely covering fixed interest charges or falling below.

The Market Still Undeveloped

That there yet remains a large undeveloped market for refrigerating service in houses is a fact beyond dispute. Nearly 14,000,000 houses are not now equipped with commercial refrigerators of any type.[10] Very few urban houses are without refrigerators, although surveys in small towns have shown that around 6% do not have such units. A number of studies warrant the conclusion that approximately 6,000,000 rural non-users are so located that ice delivery at reasonable time-intervals could profitably be made if the delivery is an adjunct to some other business. Many of these customers have electric service

[6] Estimated on the basis of territorial checks. No reliable data are available.

[7] *Ibid.*

[8] Data from the National Association of Ice Industries.

[9] Estimated from a study of the records of investment banking houses.

[10] Taken from surveys by the author.

and are prospects for mechanical refrigeration. At the present average family consumption of 2.75 tons per annum, which is low, since many rural homes have more than household applications, this market, including urban non-users, would annually consume a total of about 19,000,000 tons of ice, an increase of nearly 30% above the gross sales of the industry in 1931.

Although the water-ice industry has been in existence over 50 years, only 12,500,000 American homes are equipped with ice refrigerators,[11] while in the same period electric service has been brought to nearly 21,000,000 homes.[12] Up until a very few years ago the ice customer was left to determine for himself the amount of ice required to meet his refrigerating needs. The result is that even today the majority of ice customers use an insufficient amount of ice to refrigerate food properly; in the hot months insufficient amounts are used and in the cooler months little or no ice is taken, although it is necessary for proper food preservation. The percentage of homes using ice the year round varies from 5% in the smaller towns to around 10% in the cities of the north and reaches 20% in southern cities having the better grade of homes.[13] If 50% of present users were persuaded to replace present boxes with ice refrigerators adequate for their needs and to use ice the year round, the increase in ice sales would be around 15,000,000 tons, or an increase of about 20% of the present urban domestic consumption. A similar calculation for the accessible rural homes and urban non-users indicates 6,000,000 tons additional consumption available. These estimates show an undeveloped market of slightly over 30,000,000 tons, or an increase of 75% of the present total domestic consumption.

The Nature of Refrigerating Service

Refrigeration in the final analysis is a form of power. The customer is buying the use of power in converted form or refrigerating effort. As in electric service, there is a varying demand and rate of use to meet the customers' fluctuating service requirements. Power delivery by wire and prompt conversion to meet the varying needs of the customer render the desired type of service. Ice is merely refrigerating effort stored up in an ice plant and delivered over the streets at intervals; it charges the ice box but the combination, as in the storage battery, must meet the varying needs of the customer until the next charge. The battery must be suitable and the contained energy ample. An undersized mechanical unit has, because of the automatic conversion feature, a better chance of rendering adequate service than the undersized ice box, although both may have equal insulating qualities.

Competition in Merchandising Refrigerators

For years furniture, hardware, and other dealers were the sole distributors of ice refrigerators. These dealers were little interested in the refrigerating efficiency of the boxes sold; this attitude was transmitted back to the manufacturers, with the result that a large proportion of the boxes sold, previous to 1926, are incapable of maintaining proper temperatures. Any size of ice box was sold to the customer. The ice company gave no attention to whether the combination of the ice box and the frequency of delivery was serving adequately the customer's needs. If the

[11] Data supplied by ice-box manufacturers.

[12] 47 *Electrical Merchandising* 27 (January, 1932).

[13] From surveys by the author and others.

customer hung up his "ice card" asking for 50 pounds that was the amount delivered at the regular time. Ice companies not only failed to dispel the ignorance of the customers but actually abetted the ill effects of it.

The advertising campaign to educate the public to the advantages of the household mechanical refrigerator shocked the ice companies into a partial recognition of the service aspects of ice. This campaign did not overlook the inefficiency of the ice boxes in use, the irregularity of ice delivery, nor the ice company's practice of allowing the customer to determine the amount of ice needed. All these were effectively spread forth as the factors resulting in improper refrigeration for food preservation and all could collectively be abolished by purchase of the mechanical unit. The inference that ice was not a satisfactory refrigerant was easily portrayed.

The National Association of Ice Industries conducted a national campaign seeking to educate the public in the uses of ice and to the year-round necessity for refrigeration. At the outset much was said about the advantages of ice alone, but later the importance of a proper ice box to the refrigerating service of ice and adequate delivery was recognized. Some local companies have carried on educational campaigns with excellent results. Many companies have organized home service departments to visit and instruct customers in the proper uses of the ice refrigerator. Employees have been instructed in the proper methods of food preservation. Undoubtedly the public knowledge of refrigeration service has been greatly increased by these movements.

But to date the benefits have fallen largely into the laps of the mechanical unit salesmen. New customers have been secured by the ice companies to take the places of those lost but the average annual consumption of all domestic customers has shown little increase. The results so far attained by the ice companies have hardly justified the expense because the rest of the chain has not been forged; the practical service and pricing policies to cinch and hold to the ice business the increase in the use of refrigeration have not been adopted. There is little use of educating a customer to the need of refrigeration, if the competitive price situation is such that he can easily turn to mechanical refrigeration, for then the ice company has to educate several low-quantity customers or non-users to make up the loss. It may be a continuous process of "setting them up" for the competitor.

No one can deny that merchandising of the mechanical household unit was attempted before the unit was properly developed from the technical point of view. But within the last few years units with performance guarantees have been placed on the market by financially strong firms whose reputation for superior products is recognized. Retail prices have been continuously reduced. It should be recognized that the mechanical refrigerator presents no difficulty for mass production; such a unit is far less difficult to manufacture than the automobile. There is little doubt that distribution costs can be further reduced with increased volume, as has been accomplished with comparable products. If the available sales and manufacturing cost data are used to construct both a demand curve and a volume production cost curve, the spread between the curves clearly indicates that selling price can, with increase in volume, be further reduced with accompanying enlargement in aggregate profit. Coupled with this is the expectation that electric and gas rates will continue to be reduced

at intervals as has been the tendency in the past years.

All indications point to the fact that the average housewife wants the automatic refrigerator and will buy it as soon as the family budget will permit. There is a new emphasis on convenience in everything going into the house and, although ice service is satisfactory, the housewife is anxious to avoid the annoyance and inconvenience of the ice deliveryman. The first cost of the ice box and the price of ice must be below the cost of the mechanical refrigerator and the energy expense by an amount sufficient to persuade the housewife to put up with the inconvenience. Just what that margin is no one can say. As the family income climbs upward to higher brackets, the pull of the margin lessens. The total cost of the ice and the ice boxes of various sizes must be brought as low as possible in order to increase the consumption of existing small-quantity users and attract non-users in the lower family-income brackets.

Ice producers have generally in the last six years begun to retail ice boxes and insist that ice-box manufacturers improve the temperature maintenance and wearing qualities of their product. Manufacturers have greatly improved their product but generally now put out two lines of boxes, one called the "trade line" and the other the "ice company line," the latter being superior in refrigerating quality. One of the real handicaps of the industry has ever been the retail prices of ice boxes. There is no doubt of the failure to maintain sales of ice boxes at the present prices. The sales have fallen from 1,400,000 in 1925 to 450,000 boxes in 1931.[14] Mass production of ice boxes can materially reduce the manufacturing costs. Ice producers have failed to agree upon standard types and designs or collectively to place orders with the manufacturers who could apply mass production methods. Many ice-box producers are turning to other fields and this trend has eliminated the marketing of many inferior boxes. A few years ago several producers of ice boxes were asked by an official of an ice company to build an ice box which would hold 50 lbs. of ice, maintain a temperature below 48° F., and cost the ice company not over $10. The proposition was declared impossible and the accompanying remarks pointedly referred to that official's mental deficiencies. Yet a manufacturer of metal specialties took the contract and produced a satisfactory ice box. It is difficult to believe that the policy of many ice companies not to undersell retail dealers who have heavy mark-ups and small volume results to the advantage of the ice company. It is urged that in the absence of cooperation the dealers would turn to inferior boxes but, if the selling price of ice boxes is brought by ice companies to a level attractive to customers, the dealers will find it unprofitable to sell ice boxes. In the vigorous struggle for distributive outlets the price margin between the mechanical refrigerator and the ice box must be increased as the price of the mechanical unit reaches lower levels.

[14] Data from ice-box manufacturers' reports.

Ice Distribution

There are three methods by which ice is distributed to the public; namely, (1) retail sale from delivery vehicles, (2) wholesaling at the ice plant "dock" to those who come for it, as large customers or peddlers who retail to others, and (3) retail sales to consumers at cash-and-carry stations. Ice is also sold at contract prices for railway car icing at special loading platforms.

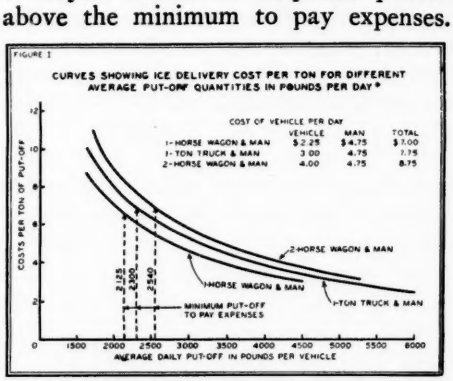
Vehicle Costs. Over 50% of the total

expense of servicing the customer's ice box is made up of the expenses incurred in the street delivery system. This does not compare unfavorably with the distribution expense in the electric utility; in the electric utility the fixed costs on the equipment represent a high proportion of the total but in the ice industry the direct costs in delivery are high in comparison with fixed costs on equipment. The average expenses of delivery per ton of ice sold during the year are now around $4.00. For several years the expenses of delivery showed a tendency to mount but by the recent adoption of trucks moderate reductions have been achieved. The conditioning factors are the time period for servicing demanded by the customers, distances, and the weight of ice. Formerly, deliveries could be made throughout the day but present conditions require completion of delivery by noon in order to relieve the ladies of household bondage. The time consumed in carrying the ice from the vehicle to the ice box is sufficient to cause the vehicle to stand nearly 80% of the time period on the route. A faster moving vehicle does not lengthen a route unless two men are employed with the vehicle. Two men can put off more ice within the time limit but the weight burden capacity of the vehicle must be larger, which increases the investment cost. It is economical to use smaller vehicles and to replenish them with ice by relay trucks.

Figure I shows the costs per ton of put-off for the different types of vehicle combinations for a typical city company operating 300 routes. The truck can travel faster to the route than the horse-drawn vehicle but, if the route density is not too thin, it has little superiority except for redriving a route to serve customers missed. As the demand on each route decreases and as the cooler months come on, delivery routes must be consolidated and vehicles retired from active service, although the fixed costs on those vehicles hang on for the entire year. The vehicles not required for ice deliveries during the cooler months may be used to deliver coal. The retail distribution of coal is regarded as complementary to the ice business. The shrinkage of demand during the cool months makes it difficult to adjust routes to keep the put-off above the minimum to pay expenses.

FIGURE I

CURVES SHOWING ICE DELIVERY COST PER TON FOR DIFFERENT AVERAGE PUT-OFF QUANTITIES IN POUNDS PER DAY*


COST OF VEHICLE PER DAY
VEHICLE MAN TOTAL
1-HORSE WAGON & MAN $2.25 $4.75 $7.00
1-TON TRUCK & MAN 3.00 4.75 7.75
2-HORSE WAGON & MAN 4.00 4.75 8.75
COSTS PER TON OF PUT-OFF
2-HORSE WAGON & MAN
1-HORSE WAGON & MAN
1-TON TRUCK & MAN
2,125
2,300
2,540
MINIMUM PUT-OFF TO PAY EXPENSES
0 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000
AVERAGE DAILY PUT-OFF IN POUNDS PER VEHICLE

* For a typical city ice company operating 300 routes. Based on average selling price of $8.45 per ton; production cost of ice $2.00 per ton.

Often 8 or 10 routes, each having around 5000 lbs. put-off in peak months, must be consolidated to obtain 2300 lbs. put-off in the winter months. In cooler months the small truck, because of the ability to cover more distance, is more economical than horse-drawn vehicles. The motor trucks, outside of relay trucks, are usually employed on a three-to-two ratio with horse-drawn vehicles. The fast moving truck has made possible rural routes. The required put-off quantity is secured by serving customers every two or three days and using the truck for other rural routes on the intervening days.

Sales of Mechanical Units and Peddlers Affect Costs. The household mechanical unit as a competing commodity affects the distribution problem for it works like a pair of scissors, both edges of which

are cutting. On the one hand, every bit of business the mechanical unit gets is literally the cream of the residential trade, and, on the other hand, reducing the put-off of ice on the route increases delivery expenses per ton. The customers lost are generally those who use the greater quantity of ice and they can be replaced under present conditions only with a larger number of small-quantity users. Such customers are the peak months' users who are the lowest profit customers. The present trend shows diminishing net return in the residential trade. Unless the consumption of the new customers secured and of those old customers who remain is increased over the months of the year, this trend is likely to be more pronounced in the future.

The competition of the peddler results in the thinning of routes and the reduction in selling price. The peddler's argument to the housewife "that he is a poor man with 11 children and the deliveryman of the corporation gets his salary anyway" has proved to be successful in competition. The peddler is prone to reduce the actual price either by giving overweights or cutting the dollar price. Slotting the ice cake, or "scoring," so that the customer may have a visual gauge of weight, has helped correct the evil of short weight. Using a secondhand truck and not being bothered by such things as fixed charges or depreciation, the peddler can, or thinks he does, earn a living wage on a route having an average put-off much lower than that required for a corporation to break even. The small plants, which have crowded into the market, have generally been built to supply peddlers. The plant owner, who operates a delivery system, by competing with other plants in terms of price for the plant or dock purchases of the peddlers, is merely indirectly competing with himself in the retail market unless the peddlers serve different markets. On the other hand, prices to peddlers cannot long be high enough to drive them from the market, for new plants would be built or ice transported in quantity by truck or freight car from an adjacent town.

Consolidated Delivery Systems. Many urge that there is a large duplication in investment where two or more delivery systems are serving a city. The duplication is chiefly in direct expenses arising from the paralleling of routes and the operation of unprofitable routes in the attempt to hold and secure customers from competitors. The duplication of investment in equipment is small; in a mid-western city where two delivery systems exist the duplication in investment is less than 20%. Consolidation into one delivery system permits the attainment of substantial economies, arising chiefly in the reduction of direct expenses. Many companies have jointly organized companies for delivery purposes and contracted for delivery at a price per ton designed to equal delivery expenses. As peddlers have lowered prices and it became necessary to meet the new price level, the blow has fallen more heavily upon the producing companies as the economies of delivery secured by the managements were insufficient to offset the rise in cost of delivery per ton resulting from the "encroaching" competition. Delivery system operation requires the closest type of personal managerial supervision and better efficiency is obtained by owner supervision than by the average corporate management system. Ownership of the consolidated delivery system by independent individuals would place the existing producers at a trading disadvantage and probably attract new plants.

Many believe that the inroads of

mechanical refrigerators will become sufficient to "thin out" delivery routes to an extent that a corporation cannot profitably deliver ice and that the delivery must eventually be abandoned to peddlers, or so-called "peddlerization." Many urban companies have already abandoned districts where the mechanical refrigerator density is high. Without proper service and pricing policies on the part of the ice companies, the trend in this direction will be more pronounced in the future, particularly in cities. If complete peddlerization were adopted, the competition between producing plants would force down dock prices and produce a movement to locations suitable to the peddlers. Peddlers would eventually come to control manufacturing. Without proper cooperation among peddlers, which is not to be expected, service to the public would materially suffer.

Cash-and-Carry Stations. These are nothing more nor less than segments of the ice plant platform spread around on building sites more convenient for consumers. In the beginning, the cash-and-carry stations were created to compete with the dock sales of other ice plants and to attract customers from peddlers. The station, if located on an artery of traffic, does cut into the dock sales at the competitor's ice plant which is generally not conveniently located to serve this group of retail customers. As to competition with peddlers, the theory, yet unproven, is that customers, who will change from an efficient delivery system to the peddler because of cut prices, will in the same degree leave the peddler and go to the cash station to save delivery costs. It is reasoned that those customers who have been in the habit of coming to the competitor's plant because of the lower price will patronize a more convenient station, and also that the number of small-quantity customers or occasional users attracted will be sufficient to increase tonnage sales materially.

The owner of the nearby ice plant merely cuts his prices to tempt customers from the boulevard station and to hold his peddlers. He is in good position to reduce prices as his dockman in the busy season can generally perform other duties and in the slack season the tankman can care for such sales. None of his other costs has been increased. The cash-and-carry station must have an attendant for the months it is operated and usually the station cannot be closed with the passing of the peak period. Residential districts demand a dignified type of station, each of which represents an investment from $2,000 to $16,000 with real estate. The station owner has the handicaps of cost of relaying the ice from plant to station, attendance cost and other expenses, together with fixed charges. A station representing an investment of $6,000 with ice at a delivered cost of $2.70 per ton and fixed charges of 17½% must secure, to carry this burden on 600 tons sales, $7.40 per ton sold; for 1,000 tons, $5.80 per ton sold.

The cash-and-carry station to hold peddlers must meet the dock price of the adjacent small ice plant, thereby absorbing the cost of relaying ice. Generally, the station owner operates a delivery system serving the district market around the station and competing with peddlers. The more business the peddlers obtain, the more is the put-off of delivery system routes reduced and cost of delivery per ton increased. The small-quantity users drawn by the station represent a thinning of the station-owner's or peddler routes, and on the quantity of ice sold to such customers the selling price is reduced. The more small-

quantity users taken from the peddlers' routes, the more active the struggle for the remaining customers and the tendency of peddlers to buy from the plant owner who does not make deliveries nor operate cash stations.

The cash-and-carry station owner is merely competing with himself, in addition to everybody else, unless the station attracts enough new and occasional customers to reimburse him for his increase in costs, losses in delivery sales and sales to peddlers, and to provide, over and above, a profit. Usually, companies operating a delivery system and such stations have accounting statements showing an operating income from these stations. These statements do not properly take into account certain items of cost changes. The test is the increase in overall operating income; by this test the cash-and-carry station selling only ice is found wanting.

To help carry the operating costs of the installed stations, many companies have begun to sell all classes of package food goods, chilled watermelons, and, in some instances, dairy products. One southern company sells $130,000 worth of package goods and watermelons each year at 30 stations with a profit of $35,000. Objections were raised by local retail grocers but a survey showed that these grocers used annually less than $5,000 worth of ice. Another company has put in gasoline service facilities at an additional cost of $3,000 for each station and an average of 75,000 gallons of gasoline per year is sold by each station; the station so equipped could, if necessary, on a basis of 600 tons annually, sell ice at $5.20 per ton. More often leases are given to gasoline companies and the attendant is jointly employed. These stations fit into the general delivery system as refill points. Ice is hauled at night to these stations to recharge the vehicles delivering ice to the market adjacent rather than sending a refill truck out on a hunting expedition in quest of each delivery vehicle. If a station selling 600 tons annually can refill 10 routes, the retail price at the station can be reduced $1.00 per ton; if 25 routes are served, $2.00 a ton, in case competition makes this necessary.

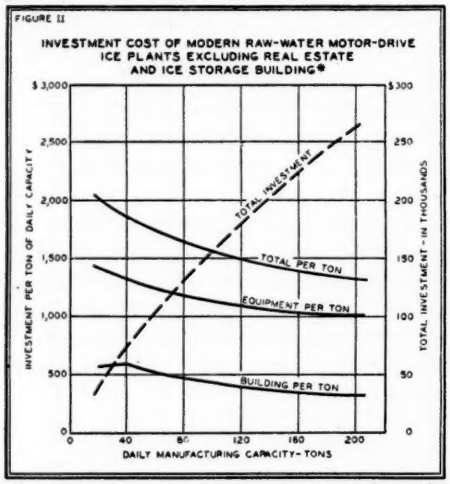
The logical evolution of the cash-and-carry station from the point of operating costs in the larger situations is toward making each a small producing plant. Whether the industry continues to deliver its own produce or adopts complete "peddlerization," the trend will be in this direction just as the small town plant is now moving uptown and becoming in addition a cash-and-carry station. On the merchandising side, it seems quite likely that in the larger situations the ice companies cannot afford to develop the sale of other commodities of a sufficiently diversified range to maintain a place in the community shopping centers, now rapidly emerging, and, if suitable package wrapping can be developed, food retailing establishments will take over the cash-and-carry sale of ice.

Economies of Production

Economies in investment costs of ice plants as producing capacity increases are not present in a degree comparable to electric power plants, gas plants, or many types of factories. The investment costs of modern raw-water, electrically driven ice plants are shown on Figure II. The data were taken from plants designed in accordance with best engineering practice to operate under the average cooling water conditions encountered. If water of low temperature is available for condensing purposes in the summer time, the number of ice freezing cans, the size of condensers, and

compressors can be slightly reduced with consequent reduction in equipment and building costs for a given capacity. The 1930 level of prices assumed is probably somewhat higher than present-day prices which are regarded as subnormal. The cost of real estate varies within a wide range, depending upon location in the city. The ground area required for the ice-making plant alone shows little reduction as capacity increases, but the plot area must be adequate for the vehicle loading platforms and ice storage building and therefore it mounts at an increasing rate with the increase of ice plant and storage capacity.

FIGURE II

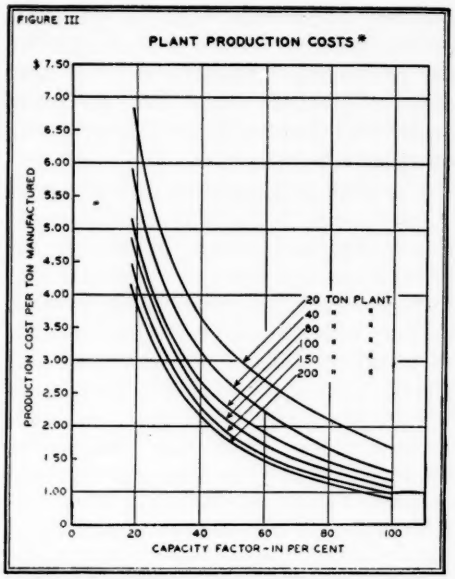


* Assumed conditions: 13.3 cans per ton; 22.5 lbs. suction pressure; brick buildings; new modern equipment; 1930 prices.

The economies of utilization for different capacities of plants are shown on Figure III. Labor costs per ton produced fall away slightly faster in the case of smaller than in higher capacities. Maintenance costs exhibit a very similar trend. Power costs fall away faster as annual load factor increases in the case of the smaller capacities but the cost of power per unit used throughout the load-factor range declines rapidly as capacity increases.

The demand for ice varies widely

FIGURE III



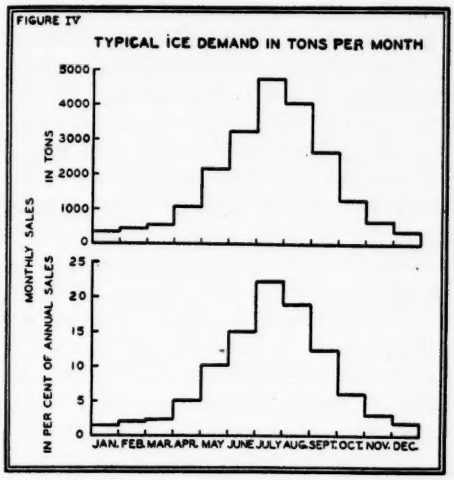
* *Including:* Cost of power, labor, materials, maintenance, and plant supervision.
Excluding: General and administrative expense; real estate investment cost; ice storage cost.

throughout the months of the year. Temperature is the principal factor, although humidity plays an important part, in influencing demand during the hot months. In the hot months a one-degree increase in average temperature increases the demand nearly 3% and a slight increase in relative humidity will produce an equal effect on demand. The upper curve of Figure IV shows the tonnage sales exclusive of car icing each month of the year for a company operating a number of plants in small cities of the Middle West. The lower curve shows the percentage which the tonnage sales during each month bears to the total sales for the year. The variation is from 22.1% of the annual sales in the month of July to 1.8% in December.

The ice plant can carry but little overload above producing capacity. The manufacture and storing of ice during some months improve the annual load factor on the plant and permit a reduc-

tion in producing capacity required to serve the peak demand. The economies in investment cost and utilization attained in the producing plant are weighed against the investment costs, labor, and other expenses of storage. The investment cost of storage buildings and equipment per ton of ice capacity falls away rapidly up to 5,000 tons capacity but declines only slightly as capacity further increases. One-thousand-ton storage capacity requires an investment cost exclusive of real estate of $16 per ton; 5,000 tons, $11.00; and 20,000 tons, $9.25. The expenses of storage vary directly with the length of storage. The expenses of placing and withdrawing the ice from storage are present whether the ice is left in storage one or three months. For the demand shown on Figure IV a 60-ton plant operating at 100% capacity factor for the full 12 months would require a 7,900 ton storage; an 80-ton plant would operate at 100% capacity from March 1 to October 1 and require 5,100 tons storage. A 100-ton plant would operate at 100% capacity from April 1 to September 1 and require 3,000 tons storage. The 80-ton plant with 4,200 tons storage would be the most economical for the conditions assumed. Large storage capacity can hardly be located in residential districts. Therefore, the expense of delivery is increased and this item easily outweighs the savings achieved by the increase in plant utilization after deducting storage costs. The small plant with moderate storage capacity, located adjacent to the market served, can renew operations at full capacity in March and cease operations in October with better overall economy than the larger plant with limited storage capacity or a plant of less capacity but having a larger storage capacity.

FIGURE IV



The forthcoming article will discuss the movement for public utility regulation of the water-ice business, the control of competitive practices, and the pricing problems of the industry.

What is the Matter with City Planning?

By HERBERT S. SWAN

FOR a long time it has been apparent that something is the matter with city planning; just what nobody seems to know. Yet everywhere we hear the complaint that an inordinate amount of effort must be expended for each unit of achievement.

The purpose of this paper will be to ascertain, if possible, why so many city plans, though good in themselves, achieve such meager results. After reviewing some of the limitations and shortcomings surrounding the present planning of cities, we shall examine briefly some attempted remedies and then proceed to the formulation of a constructive program of desirable changes and adjustments in our approach to planning urban areas.

I. Present Limitations upon the Planning of Urban Areas

In the early days of our municipal history, a city generally embraced the entire urban area tributary to a commercial center. There were no satellite cities. So long as a city remained small, there was, of course, little occasion for suburban communities beyond the city limits. The primitive means of transit, moreover, inhibited centrifugal tendencies. Walking to and from work kept home and work place together; although the horse car and the cable car extended the distance that people might live from their work places, these did not encourage the development of far-flung suburbs. Not until the commuter's train, the electric trolley, the high speed interurban, and the automobile came was any considerable impetus given to the growth of suburban communities. The development of satellite cities is therefore a tendency of only the last 50 or 60 years. But this surge to the suburbs beyond the city limits and beyond the control of the parent community, though comparatively recent, has, nevertheless, proved most destructive to the solidarity and prosperity of the parent city.

In some of the large metropolitan areas around our older cities, the origin of the present multiplicity of municipal corporations is, of course, the result of a somewhat different set of conditions. The principal centers in these areas were cities with as old and venerable a history as the metropolis to which they are now but satellite suburbs. New York, Philadelphia, and Boston, for example, have all experienced such tremendous growth that they have subordinated, where they have not swallowed up, what were formerly independent cities. The one-time rural areas lying between these cities, now densely populated, are divided among scores, and even hundreds, of commuting suburbs. The past lack of regional consciousness in the planning of these huge metropolitan areas has been nothing short of appalling. The little progress that has been effected in rectifying this situation during the past decade lies more in the growing recognition of the evil than in deliberate action thus far taken to overcome it.

But we are not going to consider in this discussion the peculiar problems of the large metropolitan area. Although these problems are in many ways identical with those of the smaller city, there is nevertheless sufficient difference,

on account of size, to warrant confining our present consideration to cities ranging in size up to 500,000 population.

Municipal Decentralization. It is everywhere evident that we have attached too little importance to the political integrity of the city and entirely too much importance to the integrity of other political subdivisions, such as the town and county. Both town and county have been considered sacrosanct within their own respective limits. In some states a city has, for instance, been unable to grow beyond the limits of its own town; what growth has developed beyond the town limits, if incorporated at all, has had to be incorporated as a separate municipality. In such cases what should be a single city is often divided between parent city and half a dozen satellite municipalities. When a city has grown up to or spread over the county line, a similar result has generally occurred; what has developed across the county line has been incorporated as one or more separate municipalities. In either case the political integrity of the urban unit has been shattered. Here and there these difficulties have, in a measure, been remedied by a change in the municipal boundaries; the city has annexed an occasional suburb or straightened a crooked boundary to include a few isolated subdivisions. But despite these changes, the fundamental problem of satellite developments on the outskirts of the city has remained unsolved.

The policy of extreme decentralization in the chartering of municipal corporations has led to a situation in some states where in many instances it would be difficult to justify these different municipalities as separate wards; to justify them as wholly independent and autonomous cities and villages is simply ludicrous. As a united urban unit these weak municipalities might constitute a strong city with sufficient wealth and credit to undertake a big, imaginative program of municipal development; as broken fragments of a city they will always remain impotent.

To secure well-rounded development it is every day becoming increasingly clearer that a city should embrace the entire urban area directly tributary to it. Thoroughfares, parks, sewers, water, fire, police, and schools are scarcely political problems; their consideration cannot be satisfactorily limited to arbitrary political boundary lines. Topography and geography recognize no political subdivision; they transcend such arbitrary and artificial distinctions. Yet, with the multiplicity of satellite communities hemming in a city on all sides, that is the manner in which all these problems must be studied. Both topography and geography are relegated to a secondary place in planning. Common sense would dictate that engineering problems be solved in an engineering way; that a community, which actually is to all intents and purposes an integral area, be planned as a unit and not as a half dozen broken units.

The most common result of this decentralization of municipal responsibility has been the woeful lack of harmony in the development of the two opposite sides of a boundary line. Autonomy in these outer towns and boroughs has usually meant the same thing as license in development—an utter lack of building codes, no fire limits, no sanitary or health regulations, no restraint in the layout of streets or lots; in a word, no community control over matters of the most profound community interest.

In no respect has this shattering of administrative control, or rather this

abnegation of administrative control, produced more dire consequences than in the subdivision of land. Bryce spoke in his *American Commonwealth* over 30 years ago of our cities as the most conspicuous failure of our democracy. Although it is quite commonly believed that this imputation has been in part lived down during the three decades that have since elapsed, an examination of the street plans in some comparatively new suburban communities is enough to make one wonder whether our municipal progress has been as great as we think.

The development of a rational street plan is practically hopeless under divided control, that is, assuming there is any control. But even where control is attempted, the suburbs near a city but outside its jurisdiction are powerless to exercise the scrutiny and control necessary to secure a logical street plan for the whole area. The municipalities may disapprove of bad subdivisions, they may exercise a very desirable negative control over the worst developments, but constructive action is required to obtain positive results in the way of a convenient and serviceable thoroughfare plan. This initiative must come from the parent community. The same is true of other phases of city planning. For each of the several municipalities to have a separate and distinct governing body where there should be but one is simply to put a premium upon chaotic development.

Whether we consider small cities or large cities, we have a problem of growing seriousness. The small city, no less than the large city, finds that each year its jurisdiction extends to a smaller percentage of its tributary population; that each year it loses a number of its more substantial citizens to the suburbs, citizens whose active participation in the political life of the community has always been of incalculable value to its well-being. The city loses the character, stability, and influence which their association reflects in the management of public affairs; it also forfeits the chance to tax the migration from the city. The small politician is usually as glad of the former as he is sad over the latter; yet both changes work distinct loss to the city. How far this tendency has gone in some communities is not generally recognized. But some cities have today already lost practically all their merchants, bankers, factory owners, professional men, and large property owners to the suburban boroughs, towns, and villages beyond the city boundary.

One might think that what is the city's loss would be the suburb's gain. In a sense this is undoubtedly so; many of these suburban municipalities are perfectly delightful places in which to live, but, so far as being well-planned communities is concerned—well, that is another matter. "Well-planned," as here used, of course, means well-planned with reference to the urban area of which they are a part and with reference to community rather than individual standards.

Although many of our suburban residents have built themselves magnificent homes, landscaped and planted their grounds in a most handsome manner, and left nothing undone to develop an attractive home atmosphere, they have seldom thought of their community as a whole; they have always thought of the suburb—when they have thought of it at all—in terms of their own home, their own street, their own local neighborhood. As a result, many of these suburban municipalities present a most interesting anachronism; they are among the worst planned, at the same time that they are among the most beautiful communities in the country.

II. Past Attempts at Controlling the Integrity of Urban Areas

Most cities have remained indifferent to the slow but sure disintegration in their central control over the urban area. But not all. Here and there, after much damage has been done, some cities have adjusted their boundary lines so as to include these communities on the outskirts; others have attempted to secure a measure of extra-territorial control over the development of the rural areas lying beyond their limits but stopping short of annexation; others have sought salvation through regional planning; still others, despairing of or hiding their faces from annexation, have tried to secure the desired result either by conferring additional authority upon a larger existing political subdivision or by instituting an entirely new municipal corporation charged with certain powers embracing the cities affected.

Municipal Consolidation. The maintenance of an integral city over the whole of an urban area, wherein there is now but one municipality, and the reintegration of a whole urban area into a single city, wherever its political jurisdiction is subdivided among various municipalities, are two of the most difficult problems in the whole field of municipal administration. The reconstruction of an urban area divided into two or more cities, towns, villages, and boroughs into a single municipality can, of course, take place only through mergers, consolidations, or annexations of the separate units until they have all been welded into one political unit.

It is the writer's personal view that such a simplification of the municipal structure will be very long deferred, if it is to be left to voluntary action on the part of cities; the most direct and speediest way to effect the desired result will be through action taken by the legislature itself calling for a general political reorganization of all urban areas throughout a state.

It is not, however, the purpose of this discussion to consider the method of effecting such a wholesale consolidation; let it suffice to say that a consideration of this subject would constitute a big discussion in itself. This discussion, therefore, proceeds on the assumption that such consolidations as are necessary to effect this result have already taken place and thus attention may be limited to a consideration of how best to maintain the political integrity of the urban community.

Extra-Territorial Control. In recent years the expedient of extra-territorial jurisdiction over subdivisions has been hit upon as a compromise between no control over the regions outside the city and their incorporation as parts of the city. But just as new, uncontrolled communities have sprung up after each annexation, outside the new city boundaries, no matter how far they were extended, so parasitic developments have occurred and are now occurring beyond the extra-territorial zones established to protect different cities.

Extra-territorial jurisdiction as a means of controlling the environs of a city has as a rule everywhere proved inadequate. In many states, such as Connecticut and New Jersey, it has never been used at all and, in light of their present political institutions, unless they are changed, it probably never will be used. But even in states where the authority has been possessed, it has in most cases not been exercised. Where it has been exercised, it has been applied reluctantly, even indifferently, in order not to offend property owners and officials of neighboring municipalities. Extra-territorial control has usually been confined to land subdivisions; it has

seldom been extended to the other phases of city planning. As a substitute for comprehensive city planning, extra-territorial control has therefore been woefully inadequate. Yet, extra-territorial jurisdiction is probably better—though in light of its faults, very little better—than no jurisdiction at all. It may be resorted to in case of emergency. Pending integration of the urban area and its environs into a single municipality, this authority should be exercised for a sufficient distance beyond a city to prevent developments inimical to its plan.

But extra-territoriality in a large metropolitan area breaks down completely because of numerous overlapping jurisdictions. Its largest field of usefulness lies in the small city.

Regional Planning. Much has been heard during the past decade about regional planning, especially for metropolitan areas. The enthusiasm evidenced for regional planning would suggest that it is a sort of panacea for divided municipal control in an urban area. Nothing could be further wrong.

Although regional planning is good as far as it goes, it, too, does not go nearly far enough to meet the needs of most cities. It may provide a unit plan but it does not provide a unit execution of a plan. So long as the carrying out of a plan is left to a multiplicity of municipal corporations, each exercising independent control over improvements within its own meager area, we may continue to expect unsatisfactory city development. Unit planning is no substitute for a unit administration of an urban area.

It is always difficult to get a project of any considerable magnitude carried out. But where a multiplicity of municipalities are associated in an enterprise, the easily possible becomes well nigh impossible. Conflicting interests, staggered elections, differences in financial strength, practical difficulties in apportioning the cost, and a hundred other obstacles will plague the promoters of even the simplest interurban project. No matter how desirable or undesirable a joint project may be, it is almost invariably foredoomed to ignominious failure by the numerous, inherent difficulties in its way.

New Overlapping Political Areas. Wherever a notable project affecting several municipalities has been carried out, it has almost always been through either the conferring of additional authority upon an existing municipal corporation with a jurisdiction embracing that of the several municipalities involved, or through the constitution of an entirely new municipal corporation charged with the powers necessary to effect the desired project. Illustrations of the former are found in the park commissions of Westchester County, New York, and of Essex, Hudson, Passaic and Union Counties in New Jersey; illustrations of the latter are found in the Metropolitan Park Commission of Boston; the Sanitary District of Chicago; the Passaic Valley Sewer Commission of New Jersey; and the Port of New York Authority in the states of New York and New Jersey.

That these new agencies and these old agencies with broadened powers have functioned successfully, instead of clinching the case for our present system, only indicts it the more severely. The wonderful successes that have been achieved through consolidated authority merely presage the magnificent triumphs in city building that await us, if we would but be rational and use twentieth century businesslike methods in our planning.

III. Suggested Program for Controlling Urban Areas

Clearly what we need in order to secure well-planned cities in the future is not another temporary patching up of old, worn-out municipal forms but a permanent solution of the problem—an entirely new setup, if necessary, which will frankly recognize the fundamental defects in the existing situation and thereby render unnecessary a constant tinkering with extra-urban and inter-urban matters. We must also rectify certain grave defects inherent in our present concepts of proper planning administration. Else we must calmly accept the fact that a large portion of our urban population must continue to live, as it now lives, permanently in unplanned cities.

Compulsory Planning. For years we have had permissive legislation which has left it optional with cities to appoint planning commissions. But even where a planning commission has been appointed, it has usually had little, if any, power and such authority as it might exercise could be overridden at will by the council. These essential facts are not altered materially even under the model city planning law formulated by the Committee on City Planning and Zoning of the Department of Commerce. Advanced as the program contemplated by this model bill is in contrast to past practices—and let it be remembered that only a few states have as yet enacted it into law—it still gives the city council the discretion as to whether that body will or will not appoint a commission and will or will not follow the guidance of the planning commission. Something more than optional planning is obviously necessary to secure satisfactory planning in all cities of a state.

Optional planning usually means sporadic planning; for a season there may be a spurt of enthusiasm for planning but, unless a city crystallizes its planning activities into a systematic program, they will also invariably be spectacular, intermittent, and lopsided. Many of the most important but undramatic phases of planning will be altogether ignored. With the approach of an election there is either a well-nigh complete cessation in carrying out planning projects or else a feverish haste to do something desperate to capture the election.

A city cannot be properly developed upon moratoria in city planning. Elections occur all too frequently. With a two-year term of office for councilmen, half of the council being renewed annually, there are at best but six months a year in which the city fathers can be expected to undertake something constructive; to do anything that may be remembered at election time would not only be exceedingly inexpedient and unwise—it might even be politically suicidal as many a has-been officeholder could vow.

Facts such as these are not to be overlooked; indeed, they must be very much taken into account, if we are to have businesslike planning, well-rounded, all-inclusive planning every day in the year for three hundred and sixty-five days a year. And after all, that is the kind of planning we should aim at, but it seems increasingly more certain as years go by that we will never obtain it without separating planning, as far as possible, from petty politics. Even this is apparently not enough, for as late as the present year of grace, it is only the exceptional community that has a hard-hitting, militant planning commission.

One may say that here lies a fertile field for public education. But is not the truth of the matter that, if really effective planning is generally to be achieved, the state must oblige every

city to prepare and adopt a comprehensive plan? In other words, must we not have compulsory planning just as they have it in England, Germany, France, Italy, and Sweden? And, if we are to have mandatory planning for all cities, will not the state have to provide a central planning board to exercise general supervision and direction over local planning, so that it will comply with minimum standards of attainment in all its different phases? And if a city after a reasonable period, say, five years, has neither prepared nor adopted a plan, should not the state planning board have the requisite authority, under appropriate safeguards, to step in, have the plan prepared and put into effect without action by the city?

Central State Planning Board. In constituting a central state planning board to act in a supervisory and regulatory capacity over local planning, care must, of course, be taken so that such local interest as may exist in city planning will not be dampened. By no means do we wish to substitute state action for local initiative; under no circumstances should we replace adequate plans worked out through the municipality itself with those evolved by a bureaucratic state government. The function of the state planning board should be, not to act for the municipality, but rather to stimulate the municipality to act on its own responsibility. Plans prepared by the municipality itself are likely to be more sympathetic with the locality's unique needs, more original in their conception of a community's peculiar opportunities, more idealistic and at the same time more practical in their treatment of the problems relating to a city's general design and composition than are plans evolved by a state board. Voluntary planning would therefore go on as now. Progressive cities would not have their ardor for planning dampened by the passing of a compulsory planning law. They would still be just as anxious as ever to improve their plans. Only in extreme cases, and then only as a last resort, where a city has declined to plan, should the state planning board have a plan prepared and promulgated for a city.

Political Integrity and Urban Areas. Satisfactory municipal administration means something more than mere jurisdiction over so much land; it involves the exercise of sufficient authority to control the whole urban unit whether portions of it happen to be within or without arbitrarily drawn boundaries.

Just where to draw the line between urban and rural land may, in a specific case, present some difficulty. On the fringe of every growing city, there is a considerable quantity of land in a transitional stage of development, passing from farm land into urban land. The planned area of a city should be sufficiently broad to make ample provision for legitimate developments of this character. But, at the same time, the city owes it to itself to discourage wildcat developments so far off in the country that their only result will be to scatter the growth and dissipate the solidarity of the urban area.

Land is either urban or rural and, granting that the two kinds of land have separate interests of sufficient importance to justify different forms of government, what land is not rural should be under urban control. Rigid city boundary lines have always served and, it seems safe to say, always will serve to destroy the integrity of a growing urban unit. Sooner or later the urban development spreads over the boundary line. Then the integrity of the urban area is shattered.

We stand in need of flexible city areas. A small city should have a small area;

a large city should have a larger area. In other words, a city's area should grow as the city grows. As it is possible to have the planned area anticipate the city's growth, why should not that area rather than a hard and fast area constitute the territory within the administrative jurisdiction of the city? And as a city grows, why should not changes in the corporate limits of the city, subject to appropriate supervision by the state planning board to guard against abuse, synchronize with and be coincident with the changes in the limits of the planned area?

If the city limits are to be coterminous with the planned area, then something should, of course, be done to protect the solidarity of that area against outside competitive and antagonistic developments, else there will be only a repetition of new satellite developments. Such developments should therefore be effectively prohibited within a reasonable distance of the municipality. The belt of prohibited development should be whatever width experience may prove necessary. In the case of a very small village, the width of prohibited development may be only a mile; in the case of a thriving small city, five miles; in the case of a large metropolis 10, 15, even 20 or more miles. But whatever the width of prohibited development, the land within the zone of prohibited development should be kept rural until the planning commission chooses to extend the planned area. To maintain the integrity of the urban unit, the state should refuse incorporation to all new political subdivisions within either the planned area or the area of prohibited urban development.

Aiding Property Owners to Follow the Plan. In the development of the master plan for the urban area, many things will, of course, be worked out in only a general way; the details will have to be filled in as occasion demands. Until these details are supplied, some owners will find it very hard to develop their property advantageously. The master plan, for instance, may embody only the major thoroughfares; it may give no consideration at all to the minor streets except as they are treated in a general way by the land subdivision rules. An owner of a small parcel may be so situated that it is practically impossible for him to develop his holding all by himself. Contiguous and neighboring areas may have to be platted either in whole or in part before he can obtain a satisfactory plat for his tract. Or, the local topography, geography, or other conditions may make it, if not impossible, at least inadvisable to develop his tract except in conjunction with the holdings of other owners. Yet these owners may sit back for years without attempting to subdivide their property. In the meantime, the owner of the small parcel or of the peculairly shaped parcel is bottled up. In all fairness, an owner should, under such circumstances, be empowered under appropriate conditions and safeguards to demand that the city take steps to develop a detailed plan for the neighborhood and to carry out so much of it as will enable him to make a reasonable use of his property.

In other instances also owners may require the aid of the planning commission in order to protect their property interests. For example, the present isolated development of a tract, even if carried out in harmony with the master plan, may be prejudicial to the proper development at a later date of adjoining areas. Unless sympathetic consideration be given to their situation in the development of the neighborhood as a whole, their interests may be so seriously compromised as to destroy almost

all hope of a future enhancement in values. Should not such owners be entitled to have the position of their own properties in the detailed neighborhood plan carefully studied when a neighboring owner takes steps to develop his parcel? Do not the permanent interests of the whole locality justify giving individual owners in such instances a legal status, so that they may demand the development of the detailed plan of minor streets? A city plan exacts considerable accommodation on the part of the property owner; it should also accord him some rights, especially when the best interests of the plan itself would be served by the recognition of these rights. Under such circumstances it would seem that the property owners, contiguous to or near areas about to be planned in detail either by their owners or by the city, should be put in a position where they can effectively protect and maintain their proper rights in planning their own property.

Guaranteeing the Plan. How to make a plan, once it has been adopted, the controlling influence in the development of the community is, even today, troubling every planned city. Some statutes, it is true, surround a plan with a certain amount of security; it must be observed unless the council does so and so. But the difficulty usually lies in the fact that, under certain circumstances, the council will do so and so, and this often quite regardless of the real merits of the case. Having acted thus to set the plan aside, the council may either do nothing at all—which is a very common procedure—or it may proceed to carry out an inferior, though a more expensive, plan. In other words, the plan has, even under the best present practice, no more sanctity than the council may voluntarily accord it. If a plan is to have no more fixity than a majority vote of the council may give it, then many of our plans are indeed going to have little permanence.

Another evil that is scarcely less serious to the ultimate realization of the plan is the latitude in regard to time permitted the council in carrying out a plan; it need neither change nor carry out the plan; it may simply let the plan remain a paper plan.

Both of these conditions call for careful study. The preparation and adoption of a plan should imply serious intentions to have it realized. If there is no predisposition either to abide by the plan or to do anything positive to bring it into effect, it would be just as well not to have a plan at all. To put the realization of the plan off until the dim and distant future—as has been done by so many of our cities—means, in fact, that the plan will in large part never be realized at all. A fixed date for achievement of the whole plan, as of that date, is necessary in order to place as well as to keep a city abreast of its current planning requirements.

Whatever justification there is for a plan demands that such guarantees be developed and that such pledges be given as may be necessary actually to realize that part of the plan which relates to a correction of past mistakes or present deficiencies in planning by some future date, say, within the next 30 years. In light of our present planning practice, this may seem a radical suggestion. But is it not, on the contrary, a practical idea? Would not its general acceptance place planning for the first time on a perfectly honest basis with the city, the property owner, and the consultant who prepares the plan? If a plan is a good plan and, in all conscience, a practical plan, we should exercise every means to secure its benefits to the community at the earliest practicable date.

In the meantime, the plan should be surrounded with every moral guarantee and legal sanction essential not only to its security but to its early realization. These guarantees must assume various forms. No single guarantee will by itself bring the plan into existence; different guarantees are necessary to effect different ends.

Outlawing Piecemeal Planning. One of the most fundamental sanctions that can possibly be given official planning is to outlaw all piecemeal planning. Why should a city which has no comprehensive plan be permitted to borrow money for a street widening? Or for elimination of grade crossings? Or for construction of a new bridge? Or for a park? Or for a public building? In the absence of a city plan, a large share of any such expenditure is bound to be wasted. The state has an interest in the protection of the local taxpayer; it has an interest in establishing conditions that will secure the credit and financial well-being of every municipality within its borders. A disaster to the financial standing of one municipality soon reflects itself in stringent credit conditions and higher interest rates to other cities in the state. What better guarantee could the state possibly give the official plan than to prevent all loans to a municipality for projects not incorporated in the plan? If every city had to be planned and if no city could borrow money to pay the cost of improvements in contravention of the plan, would not a considerable impetus be given to both planning and sound municipal finance? Directing the expenditure of all sums spent on improvements into channels laid down by the plan should, of course, hasten the realization of the plan. It should also secure a maximum return in the way of public improvements for every dollar of the taxpayer's money which is spent.

Mandatory Appropriations for Planning. But still more positive measures are needed if the plan is to be realized in the not too distant future. Limiting a city's authority to issue loans and to acquire property after the adoption of the plan to projects incorporated in the plan will not by itself go far enough to produce the plan on the ground. After all, such restrictions are only negative; they will not provide the wherewithal to carry out expensive projects. These funds must, of course, be secured either through taxation, through loans which are in effect only deferred taxation, and through gifts.

Gifts are impossible to forecast; they are so variable both as to time and amount. Yet over a long period of time a city may realize substantial sums through donations by generous and public spirited citizens. There are still many big-hearted souls in the world—many more than we think. Most cities have sadly neglected them in the financial calculations affecting their plan; properly appealed to, many of them may place the community very much in their debt by becoming public benefactors.

Our main reliance for public funds in carrying out the plan must, of course, be placed either in budgetary appropriations or in loans. But suppose a city has prepared and adopted a plan in accordance with the law and then in effect nullifies it by doing nothing to carry out the plan. What then?

Many a city has had a plan for the past 10 years and yet has never spent a dollar on carrying it into effect. Here is an instance where the state planning board would again come into the picture. This board in exercising supervisory direction over planning throughout all communities of the state would

be expected to supply the needed stimulus to make planning a continuing and continuous everyday function. It would attempt to attain voluntary action by municipalities in carrying out their respective plans but, if they refused to act in good faith in performing this responsibility, the state planning board would, subject to proper limitations, have authority to *compel* a city to carry out various projects.

Such action, it is hoped, would not often need to be taken. But how are we ever to correct mistakes in the past development of our cities where the cities themselves refrain from acting, unless some central authority has sufficient power to demand each year a minimum planning effort? To be effective, this authority would have to extend even to ordering appropriations. Without this highly centralized power vested somewhere, will not our most backward cities, which are usually the the cities in most need of planning, continue to do nothing and become progressively worse places in which to live and work as the years go by? The experience of the past suggests that they would, but should we let them?

Making City Planning a Virile Force in the Life of the Community. We have been so busy in this country protecting the individual against the community that in many instances we have almost forgotten that the community has any rights at all. The result is that the city is usually tied hand and foot in carrying out desirable projects. Even the simplest project often takes a decade to carry out. The almost superhuman effort required to put through minor improvements of the most patent necessity is responsible for more sins of omission in development of our cities than can ever be rectified.

Why is the situation thus? Largely because city planning, instead of having been made a normal everyday routine in the progressive life of a city, is viewed by our laws as an intrusion by the community into a sphere of activity sacred to the individual. It has taken a tremendous amount of public education as well as bitter experience to get a sufficient number of individuals to see the moral defects of unregulated building, but when they became fully cognizant of the cruel waste as a result of uncontrolled building they at last extended the authority of the community over persons and property to include zoning. Today the jurisdiction of a municipality over building is practically automatic; the individual property owner submits to the authority of the city as a matter of course in zoning. Only in very exceptional instances is this procedure deviated from at all and then the burden of proving unnecessary hardship and the right to a variance of the regulations is incumbent upon the individual.

So long as the city is virtually at dock every time it attempts to inaugurate an improvement, we can expect occasional faint-hearted gestures at city planning, most of them foredoomed at the start to failure. City planning, to be made a virile force in the development of a community, must be made as automatic, normal, and routine in its everyday life as zoning. But to achieve this result is going to take another prodigious amount of education as well as of bitter experience to persuade the public that existing legal arrangements in city planning administration are morally indefensible.

Extending the Scope of the Police Power. Although in the unfoldment of the zoning principle we have pressed back the frontiers of the police power farther than seemed possible two decades ago, the process, let us hope, is by no means completed. Much work still remains to be done to make our cities the

efficient, healthful, livable, and beautiful communities they should be. The police power of the state must be made co-extensive with these needs; if it is not, we shall have lost permanently the power properly to direct and control the growth of cities.

What form the exercise of these new uses of the police power will assume it is as yet impossible to state with exactness. But from present indications it seems clear that we should integrate more closely than we have heretofore the whole field of our city planning activities. We have never yet properly coordinated the control exercised over all the different phases of planning. Yet there is a superlative necessity for such coordination. If, for instance, we could embody our control over thoroughfares, building lines, land subdivisions, and zoning all in a single ordinance, the task of proper planning would be considerably simplified. At the same time, the results would be both more direct and more conclusive.

Although such development belongs to the future, will it not come? Indeed, must it not come? To divide the planning of a city into water-tight compartments, each covering a major subdivision of the plan, such as thoroughfares, subdivisions, and zoning, is, in substance, a denial of, if not a repudiation of, planning in its most comprehensive implications. At any rate, it compromises its most successful application.

But successful, well planned cities cannot be built through laws, be they what they may. It requires active teamplay of all the interests engaged in private and public construction, the lending institutions, no less than the builders, architects, and realtors just as much as the taxpayers and officials. Jerry building, rent profiteering, wildcat speculation, real estate racketeering, hijacking finance in the building industry are usually more responsible for such faults as our cities possess than municipal corruption. In criticizing our city officials for acts of omission in properly directing the growth of cities, let us not forget that all too frequently the real explanation for their seeming indifference to act is to be found in an insatiate predatory greed of some private individuals.

Really comprehensive planning involves an intimate and sincere coordination not only of all official projects affecting the development of a community but of all private enterprises touching building construction in the city. So long as the big financial interests in a city, such as insurance companies, savings banks, mortgage companies, and building and loan associations withhold their active and honest cooperation from the community, its plan can certainly not be realized in any big way. Bankers, realtors, architects, builders, big landlords, and small property owners all must join with city officials in a sincere endeavor to make a plan really effective.

Private interests have in the past been altogether too prone to lose sight of their responsibility in city planning. In all fairness it is attributable as much to their forgetfulness or indifference in this respect as to official neglect that our cities are not better planned.

Program for Future Planning

The general outlines needed for a successful plan are beginning to stand out every day in bolder and bolder relief. They can be stated in very few words:

1. That every city be legally obliged to adopt a comprehensive plan.

2. That the state appoint a central planning board to assume supervisory direction over the preparation and adoption of local city plans.

3. That the state planning board have requisite authority to establish minimum

planning standards and achievements for every city within the state.

4. That the power of the state planning board extend in the case of a backward city even to a peremptory demand to prepare and adopt a plan and, in case of refusal, to have the plan prepared and put into effect without action on the part of the city.

5. That the political jurisdiction of a city be coterminous with its planned area.

6. That changes in the corporate limits of a city synchronize with and be coincident with changes in its planned area.

7. That developments outside the planned area by a certain distance be prohibited.

8. That no new political subdivision be hereafter incorporated by the state within a reasonable distance of an existing municipality.

9. That the municipal authority applicable to any urban area be simplified, elmininating all overlapping jurisdictions and thus, subject only to general state law, make the administrative authority of a municipality absolute.

10. That a city, pending the integration of its urban area into a single municipality, be given extra-territorial jurisdiction over planning for a reasonable distance beyond its boundaries.

11. That property owners when developing property in any locality within the planned area be enabled, under appropriate safeguards, to require planning in detail by the municipality of any given area contiguous to or near their property.

12. That the authority of a city to issue loans and to acquire property after the adoption of the plan be limited to projects incorporated in or in harmony with the plan.

13. That the state planning board be given sufficient authority to demand a minimum planning effort each year, for each city, even to the extent of exacting mandatory appropriations.

14. That the realization of a plan, in so far as its replanning and its present deficiencies are concerned, be completed by some reasonable future date, say, within 30 years.

This may appear to be a drastic program. But consider the magnitude of the problem; the tremendous interests involved; the millions of people affected! Viewed in this light, we may well ask whether the program is sufficiently far-reaching.

There are many gaps in the program; it contains numerous omissions; details are completely lacking. The program itself is admittedly controversial; reasonable people may reasonably differ on it. There may, indeed, be some entirely different method which will produce better results. But these considerations do not bother us at all; without putting up alibis or attempting to evade responsibility, we will be perfectly content if the program promotes discussion and helps to suggest what the next step or the next successive steps in city planning should be. In that event, it will more than have served its purpose.

Our ideal in city planning should certainly visualize every urban community caught up within a reasonable length of time with its current planning needs, so that thereafter it might live abreast of, instead of behind, the times. One thing is absolutely certain; this ideal can never be attained under our present brokendown municipal forms.

The acceptance of this program may in many respects mean a break with past traditions, but, if it brings the ideal appreciably nearer attainment, are past traditions so dear to us that we need fear the break?

Differential Telephone Rates

By JAMES K. HALL

IN devising and establishing differential rates for various classes of consumers, utility managements unfortunately have generally regarded as suitable those rates which meet the tests of adequacy and simplicity regardless of the many other serious defects present. That the first and most important requirement deals with rate adequacy—the production of the necessary revenues—is comprehensible. That rates be simple both in an absolute as well as in a relative sense, in order to alleviate the criticisms and objections of customers, may be defended in part. It appears to be impossible, however, to justify the substantial absence of the elements of equity, promotionality, and cost relationship in differential rates. Disregard of these important principles of rate-making precludes the establishment of proper rates, and results in a loss to the utilities as well as to society.

It is not unusual to find public utilities serving a large portion of their customers, particularly residence consumers, at a direct out-of-pocket loss.[1] The practice of serving a respectable portion of the community at rates which do not even cover operating costs cannot be too strongly condemned. There has been a failure to recognize that a complex cost situation cannot be met with a simple rate structure. Complexity in costs necessarily requires relatively complex or involved differential rate schedules if equitable rates are to obtain.

Rates can be promotional in two respects: by absolute lowness of rates, and by the design of the rate schedules. Whether or not rates are to be promotional in the former respect depends on costs. In the latter respect any public utility can secure promotional rates through proper design.

It is a truism to state that sound and equitable differentiation of rates in utility service pricing is equally as important as the general level of rates. To consumers of utility services the differential price of the service is frequently of far more importance than the general level of rates or the absolute burden imposed. Particularly is this true when unjustifiable discrimination is present, in consequence of which restrictive legislation is often forthcoming to curb the abuses. Railway history contains an abundance of evidence upon the nature, evils, and importance of rate discriminations. Professor Eliot Jones has aptly said that "every student of railway rates knows that the primary concern of the shipper is not the rate that he pays, but the relationship between his rate and that of his competitors."[2] The importance of proper differential pricing is only now beginning to be appreciated by utility managements, regulatory officials, and the public. In this connection it may be said that regulatory commissions in many instances might more profitably engage their attention in fixing equitable differential rates than in profitless wrangling over utility rate-bases in which the public seems to be generally the loser. If differential rates are commonly of more importance than general rate

[1] See *United States Light and Heat Corporation v. Niagara Falls Gas and Electric Light Company*, P. U. R. 1927 E 749-787.

[2] Jones, Eliot, *Principles of Railway Transportation*, (New York: Macmillan Company, 1924), p. 110.

levels, and at the least are equal in importance, public utility regulatory commissions could better serve the public by a decided shift in emphasis in rate regulation in which a real service to the public as well as to the utilities would be performed. Equitable differential rate determination constitutes a fertile field in which much needs to be done, and which to the present has received relatively little attention.

The Principles of Differential Rates

The benefit to utilities of a sound and scientific system of differential rates lies in the increased use of service through the extension of (1) the intensive service margin (fuller use of service appliances), and (2) the extensive service margin (addition of customers and service appliances) which permits public utilities to secure (a) the economies of fuller utilization of plant, and (b) the economies of large-scale production. Within the limits of existing plant capacity by increasing demand through scientifically designed differential rates, substantial economies in unit output costs through fuller utilization of plant and large-scale production are achieved. The reasons basic to these economies are (1) the very large proportion of fixed to variable costs, and (2) the fact that public utilities are "industries of increasing returns" to a very marked degree. Unfortunately, utility managements have been shortsighted and have failed to take full advantage of these economies to the extent of possible attainment.

The electric light and power industry is to be commended in the use of differential service pricing of a more scientific character than the other major utilities. Two- and three-part rates based upon careful scientific cost analysis and allocation, such as the Wright demand,[3] Hopkinson, and Doherty rates, or variations of these rates, have been in use for some time. The trend of residence and commercial light and power rates has been toward the rapid abandonment of straight-line, step and block meter rates, and the substitution of Wright demand and Hopkinson rates.[4] The importance of using properly designed differential rates as a means of reducing output costs through increasing demand is forcibly stated by A. C. Marshall and H. A. Snow. They assert that

> "truly the remedy for high unit costs for residence service lies in increased use of service. It is also shown that additional quantities of current above present consumptions may be furnished profitably at prices only a little above the price of wholesale high power factor current to large industrial customers. And it must be obvious that the so-called encouragement or promotional type of residential rate, . . . its foundations firmly based on costs . . . is most effective in developing business."[5]

The electric light and power industry also fully recognizes that rate-making is

[3] In form, the Wright demand rate is a one-part rate. However, in substance it is a two-part rate as it recognizes and distinguishes demand and output costs. See Jones, Eliot and Bigham, T. C., *Principles of Public Utilities*, (New York: Macmillan Company, 1931), p. 306.

[4] The Rate Research Committee of the National Electric Light Association in its report on "Electric Rates and Their Status in 1929," p. 5, states:

"During this same period [1922 to 1929] the step rate has practically disappeared. The straight-line rate is in use in less than one-third of the cities where it formerly was in use, and even the block rate in promotional and non-promotional forms has decreased from 53 to 38 per cent of the total number of cities . . .

"For this business [commercial] the Wright demand form of rate is the most popular although the Hopkinson demand rate shows a greater percentage increase in use. Step rates are disappearing as in the case of residence rates, and other non-promotional forms are lessening in numbers to a significant extent. The possibilities of increasing commercial standards of lighting and of improvement in load factor through better forms of rates has [have] been generally underestimated."

[5] "Distribution Costs—Residence Service", National Electric Light Association, *Proceedings*, 1931, p. 114.

one of the more important functions of management,[6] an appreciation which the other utilities might well emulate.

Gas utilities, while relatively slow in adopting scientific differential rates, nevertheless use meter rates (principally block and straight-line meter rates) in the majority of rate schedules.[7] A rather comprehensive body of rate theory has been developed dealing with the analysis and allocation of costs, classification of customers, load and diversity factors, elements in differential rate schedules, and the like, through the efforts of rate experts and the Committee on Rate Structure of the American Gas Association.[8] An illustration of a scientific differential gas rate which corresponds in theory to the Doherty rate for electric supply is the four-part rate in which a segregation of costs and charges is made on the bases of (1) manufacturing demand costs, (2) distribution demand costs, (3) customer costs, and (4) output costs. Waterworks now use meter rates of the straight-line or sliding-scale type in most instances.[9] Although the minimum charge has been of widespread use in differential water rate schedules, the service charge as a distinct element in water rates is being regarded with increasing favor.[10] The combination of the segregated service charge and an output or commodity charge in a differential rate schedule makes a two-part rate. The rapid advance in recent years by electrical, gas, and waterworks utilities toward the development of scientific rate theory, based on careful cost analysis together with the increasing application of that theory to rate schedules, has been found to be of benefit not only to the utilities by resulting in more equitable pricing and the increased use of the service,[11] but to the public as well.

The telephone industry in contrast with the other major utilities presents a most anomalous situation. The Bell System, which comprises to a very considerable extent the telephone industry in the United States, has always been characterized as a highly efficient and progressive entity with a management outstanding in the business virtues of good judgment, long-time planning, progressiveness, conservative financial policies, and personnel of a high order. The major independents have not been far

[6] "Utility management has no function or responsibility of greater importance than that of rate-making. Earnings depend upon the prices charged for the services rendered. The successful development of greater sales depends upon the flexibility of the rate schedules and their adaptability to new uses for electricity, to changing costs of production and distribution, and to competitive conditions in the field of power sales. . . . Successful management is not so short-sighted as to neglect any opportunity to increase sales, because this means greater volume of output and, in turn, lower unit costs. Through lower costs lies the safe, clear road to even lower rates.

"Well designed rates, based upon experience and sound principles are the greatest factors in the development of larger sales. Poorly designed rates will render futile the efforts of the best salesmen. Rates to be successful must be promotional." Report of the Rate Research Committee, March, 1931, National Electric Light Association, p. 6.

[7] See Jones and Bigham, *op. cit.*, p. 340.

[8] *Ibid.*, p. 342.

[9] *Ibid.*, p. 355.

[10] *Ibid.*, p. 357.

[11] Henry L. Doherty in his paper on "Equitable, Uniform and Competitive Rates," National Electric Light Association, *Proceedings*, 1900, pp. 291-321, after presenting and discussing his proposed four-part rate, since compressed into a three-part rate, concludes with these words:

"I recommend this system to you as one that will develop your business, repress agitation for municipal ownership and the granting of competitive franchises, meet the competition of isolated plants and other means of illumination. I believe it will reduce the cost of production, better your load factor and regulation, lower the kilowatt cost to the consumer, increase the stability of your business, strengthen your securities and increase your earnings; in short, prove a panacea for most of the ills to which the average central station is heir."

Time has revealed that these many advantages, which he claimed would accrue to the central station through the adoption of scientific differential pricing, have to a very substantial degree obtained.

behind the Bell System in these qualities. Yet at the same time the telephone industry lags far behind the other major utilities in the selection of a proper unit of service pricing and the adoption of scientific rate schedules to secure equitable charging and promotion of economical use of service on both an extensive and intensive margin in intra-exchange telephone service.

In the continued use, to a major extent, of the flat rate for exchange service the emphasis is upon the facility, namely, the subscriber's station, which is merely a portion of the total telephone plant necessary to make message transmission complete and effective. It is obvious to all that the product of the telephone industry is not substations, but rather the intangible service of message transmission. This emphasis on the substation in service pricing results, of course, in gross inequities, and has served to divert attention from the real service or product produced—the transportation of messages through the provision of plant equipment which makes possible subscriber intercommunication. The result has been detrimental to both the consuming public and the telephone utilities, as will be seen from the subsequent discussion of the principal objections to flat rates.

The other major public utilities, on the other hand, are pricing their services on the basis of some selected unit of the *real* services produced: the electric light and power industry, the kilowatt hour; the gas industry, the heat units consumed; the waterworks industry, the cubic feet or gallons consumed; the street railway industry, the rides of passengers, or the passenger-mile; or the steam railway industry, the ton-mile in freight service and the passenger-mile in passenger service.

Elements in Telephone Rates

The proper service unit of the telephone industry for purposes of pricing exchange service in accordance with use would be the message or call in relation to (1) holding time, (2) distance, and (3) time of day of call. In other words, it would be the message- or call-mile-minute with reference to peak or off-peak usage. Since the message-mile-minute, of course, is a highly refined unit, in the light of present means and facilities of measurement, the telephone utilities would probably not find it economically practicable to use this unit of measurement. Where the exchange area is relatively small, the distance factor may be ignored in establishing a sound unit of service measurement without resulting in much inequity. In very large exchange areas, the distance factor can be given reasonable weight through zoning and charging tolls on calls between non-contiguous zones.[12] *The-time-of-day-of-call*—whether the use of facilities is during the peak or off the peak—and *holding time* are elements so important as to necessitate adequate recognition in properly designed differential rates. By placing emphasis in service pricing on peak and off-peak use, the load curve can be improved through some reduction in the abnormal peak loads and some increase in the off-peak usage. With a properly designed rate, part of the demand occurring under flat rates at the peak-hour intervals might be transferred to the off-peak periods. The economies resulting from an improved load factor would be the reduction in unit output costs by reason of fuller utilization, and the need of less capital investment in

[12] For rate purposes (to give weight to the distance factor) New York City (as of 1929) was divided into 10 zones. The City covers an area of approximately 286 square miles.

plant facilities to care for abnormal peak loads. If unit costs are high as a result of poor load factors, the rates, perforce, must be relatively high, tending to decrease the intensive and extensive margins of service usage.

Holding time of messages or calls varies widely and, unless recognition is given to this fact in rates, substantial inequity necessarily follows. Other disadvantages are present where holding time is not an element in service pricing, and will be apparent when the objectionable features of flat rates are discussed. As to the practicability of including holding time as an element in differential rates, it may be said that a reasonably economical device, the telechronometer,[13] has been developed and has been successful in the measurement of holding time of message output.

In the provision of inter-exchange or long distance service the American Telephone and Telegraph Company has long subscribed to a sound system of differential rates. Service is classified as to grade (e. g., person-to-person, station-to-station), and regardless of the grade of service elected by the customer, the pricing of the service will include the elements of *time of call*, *holding time*, and *distance* with the *message* or *call* as the basis.[14] In order to promote fuller utilization of plant, efforts to increase off-peak usage by rate reductions have been made. In the case of station-to-station calls, evening rates, which carry a substantial discount over day rates, and night rates, which are materially less than evening rates, tend to encourage use of the service during these periods of low plant utilization. If, as has been suggested, flat rate schedules to which telephone companies tenaciously cling in exchange rates are so satisfactory, why are not flat rates used in connection with long distance service? The answer is obvious; so much additional investment in toll plant would be needed as to render the flat rates largely prohibitive. Under existing forms of rates for inter-exchange service the fullest possible utilization of facilities, which means the most economical use of plant, is in process of attainment. Less scientific rates would have the opposite effect.

The Arguments Against Flat Rates

The objections to flat rates for exchange service are many and of a weighty character. First, flat rates place the emphasis in pricing on the subscriber's possession of service facilities and not upon the *use* of such facilities. Subscribers are thus encouraged to make the fullest possible use of the equipment without regard to the uses of other customers. The psychological effect upon subscribers, in some instances, is to promote excessive usage, since by this means they secure a gain at the expense of other subscribers and are gratified in the belief that they are receiving service in excess of what they are called upon to pay. When rates do not relate to the service or commodity actually furnished, the opportunity for unreasonable and uneconomical use is presented without additional cost. Human nature is such as not to resist easily a temptation "to secure something for nothing."

Second, flat rates are highly inequitable as between customers of a given class, as well as between customers of different classes. As has been stated, flat rates for telephone service have no

[13] See Allen, Coburn, "Measuring Service in Units of Time," *Telephony*, April 23, 1927, p. 14.

[14] In the case of leased-line service the message basis of pricing is not used. The price to lessees will vary in accordance with the circuit mile distance between the connected points, but the degree of utilization is entirely in their hands. It is to the benefit of lessees to secure the fullest possible utilization, as in that way the per-message cost is reduced.

reference to variations in use with the result that subscribers in a given class are assessed the same rate while extreme variations in use occur.[15] The small users of the service, therefore, are discriminated against and the large users favored.[16] Actually, large users are subsidized by small users.[17] In the case of an individual-line business-service subscriber and a subscriber to four-party residence service, the latter may make frequent calls having in each instance an almost interminable holding time, while the former may use his line less frequently with a relatively short holding time per call, paying, nevertheless, two or more times the rate of the four-party residence subscriber. Substantial discriminations between subscribers in different service classes and within a given service class naturally and logically follow a flat-rate basis of charge which has little or no reference to use of the service.

Third, flat rates increase the cost of rendering telephone service as they promote abnormally high peak loads, and, in consequence, make necessary the provision of plant facilities and operating forces in excess of economical requirements. The increased fixed and operating costs must be covered by rates higher than otherwise would be necessary if the abnormal peaks did not occur. With high differential flat rates the subscribers of small means are excluded and the service margin raised. The decrease in the number of subscribers results in a diminution in the value of telephone service to the existing subscribers because of the decrease in service mutuality.[18] Telephone companies and public service commissions have recognized the desirability of extending the intensive margins of service usage to the fullest possible degree of economic development; yet, paradoxically, they have established and approved flat rates which serve to defeat the recognized objectives. The other major public utilities have realized for some time the inconsistency of trying to promote large-scale production and fuller utilization of plant under a system of differential flat rates. A flat rate is not a promotional rate.

Fourth, flat rates result in a comparatively poor load factor and are utterly

[15] "Reference to the charts produced at the hearing of 1926 will disclose that the discrimination (in the Everett telephone exchange) then present under flat rates was almost beyond parallel in any other public utility . . .

"At this point chart No. 54 is worthy of your special attention. This chart discloses the difference in volume of use of those within the same classification of use. For instance, of twenty-three clergymen, the one using the least service paid 45% less (under measured rates) than he paid under flat rates, while the largest user in this class paid 212% more than he paid under flat rates. In number, *fifteen* clergymen paid less and *eight* paid more than they would have paid under flat rates. It immediately becomes apparent that if flat rates were in use there would be a discrimination between the smallest user and the largest user of approximately 257% . . . Take for instance the retail grocer . . . Of the grocers, one paid 65% less (under measured rates) than he paid under flat rates and one 54% more than he did under flat rates. Of the entire grocers, *fifty-three* paid less under measured service and *forty-six* paid more." (Author's italics.) (Ogden, R. D., The Brief of American Telechronometer Company, before the Department of Public Works of Washington, Division of Public Utilities, Cause No. 5896, p. 5).

[16] As John Stuart Mill has pertinently stated: "If any one bears less than his fair share of the burden, some other person must suffer more than his share, and the alleviation to the one is not, on the average, so great a good to him, as the increased pressure upon the other is an evil." (*Principles of Political Economy*, vol. 2, p. 308.) While Mill used the above language in connection with his discussion of equality in taxation, it is equally applicable to a discussion of inequitable differential utility rates, and brings out clearly the nature of the net loss to subscribers as a whole from inequitable rates. The loss to the utility is that the development of the extensive and intensive margins of service usage are greatly retarded and restricted.

[17] The New York Public Service Commission said: " . . . if the cost is distributed per station, that is flat rates, the small user is paying a share of the cost of equipment and operating labor necessary to furnish service for the large user." (*Re New York Telephone Company*, P. U. R. 1923 B 640; approved and quoted in *Rochester v. Rochester Telephone Corporation*, P. U. R. 1924 A 719-720.)

[18] Mutuality is a term used to connote the range or extent of telephonic intercommunication.

incapable of promoting fuller economic utilization of plant facilities. Telephone utilities at the best have a very poor load factor. The use of flat rates is poor administrative policy, as the continued existence of a comparatively poor load factor is inevitable. It is to the interest of all subscribers, as well as to the telephone utility, to increase the load factor by promoting off-peak usage to the fullest possible extent. Increasing the utilization of plant facilities by stimulating off-peak usage reduces the cost per unit of output, and thus makes possible the inclusion of small users of little means. Service mutuality is thereby increased and the total value of the service to the subscribers as a group is enhanced. Evening and night rate reductions are designed to improve the load factor for the toll plant in long distance service. Revenue received during these periods of low plant utilization enables the utility to reduce rates somewhat for periods of fuller use. By reducing rates during peak periods and other times of fuller use, additional patronage is secured which places the telephone utility in the position of competing still more successfully with other competing services and obtaining the advantages of still larger-scale production of the service. Through use of measured rates, concessions in differential rates which will react to the benefit of all concerned can be made to correspond to periods of low utilization of plant. When time of day of call is disregarded, flat rates with their connotation of unlimited use imply expensive service or high per-unit output costs, unsatisfactory plant utilization, and comparatively less telephonic interrelatedness.

Fifth, flat rates encourage abnormal and uneconomic service usage in the way of trifling calls of no importance. The consequent evils are delayed and incompleted calls caused by overworked lines and a relatively high percentage of "busies." That this abnormal use tends to disappear when charges are in proportion to, or based upon, the amount of use indicates conclusively that the gain to subscribers in service utility from these calls is less than the added cost.[19] Subscriber complaints, bad dispositions, and service of a poor quality are the rewards to the telephone utility for permitting the overloading of lines with calls of this character. It is to the benefit of the subscribers as a whole that these calls be curtailed and eliminated, if possible.

Sixth, flat rates totally lack the element of flexibility so important to a proper system of differential rates. A general increase in service usage tends to result in an increase in the total cost of producing the service. Flat rates respond with more revenue only when more subscribers are added or the flat rates are raised. An increase in use of the service by existing subscribers tends to result in higher total service costs with flat rates completely inelastic, yielding no increase in revenue corresponding to increased usage. Measured rates based on service usage have the element of flexibility, and will tend to adjust the total gross return to the increased total cost of service, as increased service usage by subscribers automatically

[19] In the substitution of measured rates for flat rates as affording relief from abnormal use, the Missouri Public Service Commission said: "The testimony showed that there has been service furnished in the past, over some of the lines, that had caused complaint, also that on account of the flat rate to Atchison, Kansas, and St. Joseph, Missouri, being given, these lines were used by certain parties to an abnormal degree, and that other subscribers were unable to secure that service. There is no question that the rate of 10 cents per message will cure the above evil, and that there will be less complaint in the future as to that class of service." (In *Re Rushville Telephone Company*, Missouri Public Service Commission Reports, vol. 10, p. 499.)

results in an increase in the amount of revenue.[20] It is a distinct disadvantage that flat rates do not have this element of flexibility and must be changed *in toto* with comparatively important changes in the total cost of service. Constantly changing differential rates are a source of dissatisfaction to subscribers. From the standpoint of telephone utility officials and the subscribing public, the less rates are changed the better. Changes in differential telephone rates (usually upwards) result in a whole train of difficulties: subscriber hostility, rate cases, commission approval, poor public relations, franchise difficulties, substation take-outs, etc. Properly designed measured rates would obviate the necessity of frequent flat rate changes by reason of their flexibility, and would assure the utility of adequate revenue over relatively long periods. The objections to flat rates which have been discussed are not exhaustive, as others of less importance are present.

In discussing the theory of measured telephone service, the Chief Engineer of the Washington Department of Public Works said:

"The theory of measured telephone service is generally viewed in comparison with measured service furnished by other types of utilities. *The measuring of service of any utility started from one word; discrimination.* Waste of the utility's product at a time when a shortage would be detrimental to the welfare of the general public; the similarity of charges regardless of the dissimilarity of the quantity or amount of service used; and the creation of poorer service are among the most important features of flat rate service of any kind.

"The matter of waste of a definite product does not necessarily enter into a discussion of the telephone utility. The waste that occurs on a system of this type is generally the waste of time and the waste of equipment. In other words, waste in the telephone industry has generally been described under the caption of 'service.' It would hardly be fair to say that flat rates mean poor service because flat rates are in vogue throughout the world, and yet the service is acceptable. In Everett, [Everett, Washington, telephone exchange of the West Coast Telephone Company] service under the flat rates was considered very good, yet service under metered rates is theoretically better. *So it is believed that telephone service, while not poor under flat rates, is poorer than need be when placed upon a measured basis.* . . .

"Few people now receiving service through electric, gas, and water meters would desire to revert to the old flat rate basis, although there was considerable opposition from those receiving unfair advantages at the expense of others when these meters were adopted. *The return to flat rates in these utilities would more than likely mean increased rates as more equipment would have to be installed to care for the additional peak loads established by greater usage and waste. The same theory holds true for telephone service.*" (Author's italics.)[21]

Commission Attitudes on Measured Service

Public service commissions apparently thoroughly endorse the theory of measured telephone rates but have been reluctant to apply the principle of measured service in practice except in large exchanges for business service.

In *re Michigan State Telephone Company*, the Michigan Railroad Commission said:

"Considerable opposition has developed

[20] "Unlike most types of businesses, the more customers or subscribers served by a telephone utility, under flat rate schedules, the greater is the cost per subscriber after a certain limit has been reached. This is true primarily because of the greater number of telephones available and the increased number of calls per subscriber, both of which increase the operating expenses and overhead cost without a corresponding increase in revenue. Under the metered rate schedules, the increase in the number of calls, as well as the length of the calls, tends to increase the gross revenues along with the increased expenses and overhead charges." (Craddock, F. Harper, Investigation of Measured Telephone Service in the Everett Exchange Area of the West Coast Telephone Company, Cause No. 5896, Department of Public Works, State of Washington, March, 1929, pp. 26-27.)

[21] Craddock, *op. cit.*, pp. 25–26.

to the establishment of a metered service schedule. *This opposition cannot be justified.* In several states, metered service has been adopted upon the initiative of the state authorities, *especially as applied to large exchanges where the range of telephone use among subscribers is wide.* The Commissions of several states have decided that flat rates under such conditions are discriminatory." (Author's italics.)[22]

In *Bogart* v. *Wisconsin Telephone Company*, theWisconsin Railroad Commission said:

"In principle a flat rate for telephone service is little, if any, less objectionable than a flat rate for electric current or for water or gas. As long as unlimited schedules prevail, some subscribers are bound to secure more than they are paying for, and other subscribers are bound to pay for more than they secure. We doubt, however, whether the time has come for a complete change from flat to measured service rates in Milwaukee."[23]

And again in *re Wisconsin Telephone Company*, the Wisconsin Commission approved and quoted the above statement of principle, adding:

"As to the principle of measured service, leaving out of consideration for the present some of the practical reasons for adhering to unlimited service in smaller exchanges, we think there can be no argument. We see no more reason why the telephone bill of a small business place using the service three or four times a day should be the same as that of a subscriber using it 200 times a day than to expect that all business men in Milwaukee should pay the same amount in freight charges each year. The flat rate schedule ignores the fact that the cost of telephone service is greater for large amounts of use than for smaller amounts and only through the application of a measured service schedule can this principle be recognized."[24]

In *re New York Telephone Company*, the New York Public Service Commission states:

"Measured service has been introduced quite extensively in the larger cities. It tends to eliminate waste and equitably distribute the cost of the service. Measured service is necessary in the larger cities because of the variance in telephone use."[25]

In *Rochester* v. *Rochester Telephone Corporation*, the New York Commission affirmed and quoted the statement of principle set forth in the New York Telephone Company case.[26]

The California Railroad Commission in *re Southern California Telephone Company* defines its adherence to the principle of measured service and the desirability of practical application of the principle to business service in large cities in these words:

" . . . in fairness to the majority of the subscribers, measured service to *all business service* must be contemplated as soon as practicable. From the evidence it appears that the question of measured business service is greatly misunderstood, and the true value of this method of charging has been lost sight of. The public has accepted the equities of measurement of other classes of service . . . As the number of telephones in Los Angeles increases, the variation in use of the telephone service by business subscribers becomes greater. The use of an individual business line service varies from a few calls to as high as 1500 calls per month. The subscriber whose requirements are limited to a few calls per month finds his rate on a flat-rate basis materially out of line with the service required or received. *It appears impossible, on any flat rate basis, to vary the charges equitably between the small user and the larger user.* (Author's italics.)

"We find, from the evidence in this case, that the establishment of measured rate for business service will be to the benefit of the public generally and that this measured service should be made available at once."[27]

The Maryland Public Service Commission in *re Chesapeake and Potomac Telephone Company* declared:

[22] P. U. R. 1918 C 101–102.
[23] P. U. R. 1916 C 1086.
[24] P. U. R. 1920 C 127-128.
[25] P. U. R. 1923 B 640.
[26] P. U. R. 1924 A 719.
[27] P. U. R. 1925 C 680-681.

"The Commission is very much inclined toward the establishment of only measured service for business subscribers in the counties, such as obtains in Baltimore City, but until the results of the operation of the changes now made can be studied, it has been decided to inaugurate this principle by giving individual line residence and business subscribers the option of measured rate or flat rate service."[28]

The Oregon Public Service Commission in *re Pacific Telephone and Telegraph Company* subscribed to the principle of measured rates for business service by saying:

"Measured service has been installed particularly for business service in many eastern cities and unquestionably this is the coming basis for business service throughout the entire country."[29]

And again:

"The Commission believes that it is practicable and necessary in order to remove the unjust discrimination that now exists by virtue of the enforcement of the present flat rates on business phones, that The Pacific Telephone and Telegraph Company should at once prepare for the installation of measured service for business phones in the territory included in Group 1, [Portland] . . . "[30]

The Indiana Public Service Commission in *re Indiana Bell Telephone Company* finds that:

"The business service at Indianapolis should be on a measured basis and the Commission believes the company, as soon as its finances will permit, should proceed to perfect the plans and install the necessary apparatus and equipment so that all the business service in the Indianapolis exchange area may be put on a measured basis."[31]

The New Hampshire Public Service Commission in *Hardy* v. *Hollis Telephone Company*, a case concerning telephone toll rates, said:

"The petitioners' suggestion that a flat rate be substituted for the toll rate is objectionable because it is contrary to the doctrine that everyone should pay for the service in proportion to the extent he uses it. *Flat rates are not favored, and service should, in all cases where possible, be rendered on a measured or metered basis.*" (Italics mine.)[32]

Commission Practice

From the preceding statements of commission attitudes in the various states it is clear that measured service as a principle of service pricing is approved both in theory and practice for business service in large communities. However, while the theory of measured residence service is accepted it is considered to be impractical of application, and flat rates are regarded as more desirable and satisfactory. The New York Public Service Commission states "that generally, flat rates, particularly for residence use, while not so correct or scientific, are more desirable and satisfactory."[33] The reasons advanced by the Commission for this conclusion are that "social use of the telephone serves a useful purpose and has a great bearing on station development"; that measured service "restricts telephone use"; that wide variations in service usage apparently only occur in large cities among business subscribers; and that the cost-of-service measurement precludes its use and makes it unnecessary and uneconomical except where "the cost of measuring or metering the service is less than the savings effected thereby to subscribers."[34]

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[28] P. U. R. 1920 F 455.

[29] P. U. R. 1924 D 58.

[30] *Ibid.*, 72-73.

[31] P. U. R. 1924 A 41. See also *re Indiana Bell Telephone Company*, P. U. R. 1922 C 376.

[32] P. U. R. 1918 F 682.

[33] *Re New York Telephone Company*, P. U. R. 1923 B 640.

[34] *Ibid.* In *Rochester v. Rochester Telephone Corporation*, the New York Public Service Commission affirmed and restated its position on the impracticability of applying measured rates to residence service as previously presented in the New York Telephone Company case. (P. U. R. 1924 A 719-720.)

The California Railroad Commission reveals its attitude toward measured rates for residence service by saying that "it appears to be the consensus of opinion of the Commission's engineers and of the city [Los Angeles] that there is no justification for measured residence service."[35] The Utah Public Utilities Commission is also a warm advocate of flat rates for residence service. This Commission held "that residence measured service should be eliminated as rapidly as consistent and a flat rate schedule instituted, which would give the subscriber unlimited service [in Salt Lake City and Ogden, Utah]."[36] At the same time the Utah Commission recognizes "that to entirely eliminate [residence] measured service, might result in a hardship to that class of patrons of the company who need service and *cannot afford to pay the rates necessary to meet the cost of giving unlimited service.*"[37] (Italics mine.) In other words, by changing residence service over to flat rates, rates would be increased rather than decreased. However, the rationalization is made by the Commission that "service, generally, would be improved were there only unlimited [flat rate] service."[38] It is of importance to note that the Commission found that, of measured and flat rate service of the same grade (four-party) and of the same class (residence), measured service could be given at a *less price* than flat rate service.[39] The Wisconsin Railroad Commission also recognizes that under measured rates many subscribers will secure lower rather than higher rates in comparison with unlimited flat rate service.[40] Particularly is this true of the small users and of subscribers of small means who suffer most from the inequities of flat rates. These subscribers, if added to the system, increase greatly the range of possible intercommunication and, in consequence, the service value of large users (especially business subscribers). Nevertheless, although a strong supporter of the theory of measured rates, the Wisconsin Commission believes that there are weighty "practical reasons for adhering to unlimited service in smaller exchanges."[41] The Indiana Public Service Commission ordered the discontinuance of the two-party measured residence service in the Indianapolis exchange area on the ground that it "has proven unsatisfactory to the subscribers and expensive and annoying to the company."[42] The two-party, unlimited residence service rate in effect was ordered continued.

Apparently the New York, California, Utah, Wisconsin, and Indiana Commissions fail to see the inconsistency of their attitudes. Measured rates for business service in large exchanges are strongly endorsed, yet when it comes to business service in small exchanges and *residence service in both large and small exchanges* their convictions weaken and theory and principle are discarded. The strongest argument favoring the use of flat rates is the cost of metering the service, which cost, of course, must be borne by the subscribers. That this argument has been overemphasized and its importance unduly stressed appears evident in the light of the findings of several commissions—namely, that for small users metered service for residence subscribers can be rendered at a lower price than unlimited service. For business

[35] *Re Southern California Telephone Company*, P. U. R. 1925 C 680.
[36] *Re Mountain States Telephone and Telegraph Company*, P. U. R. 1922 E 310.
[37] *Ibid.*, p. 311.
[38] *Ibid.*
[39] *Ibid.*, at 311.
[40] *Re Wisconsin Telephone Company*, P. U. R. 1920 C 127.
[41] *Ibid.*
[42] *Re Indiana Bell Telephone Company*, P. U. R. 1924 A 37.

subscribers, particularly in large cities, there seems to be no doubt but that the gain to the subscribers as a whole from measured service greatly outweighs the cost. This would also seem to be true for business subscribers in the smaller communities, as the variation in use in exchanges of even a few thousand subscribers is most substantial.[43] The majority of subscribers would gain through measured service as the very large users are decidedly in the minority, generally. The excessive use of service by the few causes flat rates to be relatively high for the many. As business service rates are, in amount, of some magnitude even in the smaller exchanges, the ratio of metering cost to the total rate paid would be practically negligible. This is likewise true of metering costs for residence service in the larger exchanges, while for residence service in the small exchanges the metering cost would not be too significant as an item in total cost to the subscribers.

Measured Service

With the use of small message registers located in central offices, which is the *common* method of recording outgoing messages for each subscriber in intra-exchange service, the cost-of-service measurement is low. The reasons for the relatively low cost of metering telephone service in comparison with electric, gas, and water service are: (1) Telephone message registers cost the operating companies from approximately one-half to one-third what electric, gas, and water meters cost.[44] (2)The periodic reading costs of message registers are very much less than the cost of reading electric, gas, and water meters. The message registers for all subscribers are grouped together in the central offices where the count of hundreds of individual registers can be taken very quickly and with little effort.[45] On the other hand, electric, gas, and water meters are located on the premises of customers, which necessitates the employment of many meter readers who, perforce, must go through the time-consuming and laborious process of checking meter readings on the premises of each customer. (3) Message registers housed and cared for under the supervision of the telephone company management, subject to careful handling and not exposed to the elements and radical changes in temperature, will obviously require less in the way of maintenance expense and in replacement expense than

[43] See footnote dealing with variations in use for both business and residence subscribers in the Everett, Washington, exchange, p. 266.

[44] The cost of message registers to telephone companies is approximately $3.50 per register. The installation cost would generally not exceed $1.00 per register. Depreciation policies will vary, but assuming a conservative useful life of 12 years, and calculating interest at 6%, depreciation at 8%, and taxes at 2% per year, the cost to each subscriber would be 72 cents per year, or 6 cents per month. In addition, other costs would be incurred such as register reading, clerical costs, and the like. The sum total of such costs would be *relatively* so small, however, as not to constitute any real bar to the introduction of measured service of this kind, even for residence subscribers in small exchanges.

The cost of electric meters when purchased in large quantities is approximately $7.00 (5 amp.) and $10.00 (15 amp.) with a useful life estimated around 20 years under a sound maintenance policy; gas meters approximately $7.50 (5 light) with an estimated useful life of around 12 years; water meters approximately $7.50 to $15.00 (¾ in.) with an estimated useful life of around 12 years. Installation costs would vary roughly from $1.00 for electric and water meters to $2.50 (labor and materials) for gas meters.

[45] "The former practice was to have the registers read once a month during the night hours by members of the operating force but within the last year, a new method has been developed in New York city whereby registers are read by means of the camera. Six registers are photographed at a time. Each photograph shows the number of the subscriber's register and the number of calls marked up. These are sent to the accounting department and used as the basis of the charge against the subscriber. Clerical errors which formerly resulted in subscribers being overcharged in one month and undercharged the next month have thus been obviated." (*Re New York Telephone Company*, P. U. R. 1923 B 690.)

will meters of electric, gas, and water companies. The meters of the latter companies, on the other hand, are installed on the premises of customers who have no particular interest in the care of the company-owned meters, and are subject in varying degrees to the ravages of the elements, to temperature changes, and to the abuse of thoughtless and maliciously-minded persons. The result is that electric, gas, and water meters must be given frequent periodic examinations, retested for accuracy, repainted, broken or defective parts replaced, and otherwise kept in an accurate and satisfactory operating condition. Also there is the transportation of meters to and from the repair shops of the company for testing and repairs. All this is costly. Message registers, however, can be observed and tested for accuracy with comparatively little expense because of their location and careful treatment. Replacements and repairs under such ideal conditions tend to be at a minimum.[46]

Other objections to measured service for residence use which were raised by the New York Commission do not appear to be very serious. That "social use of the telephone serves a useful purpose and has a great bearing on station development"[47] is valid in part only. To the extent that social use of the telephone has any real utility for those engaged in social intercourse a charge in proportion to use will not prevent conversations of this character from taking place. Conversely, conversations of a social nature not productive of sufficient utility to the beneficiaries to bear this charge had better not take place in order that the facilities of the system may be at the disposal of those whose conversations are of a more important character. Furthermore, to permit social use which will not stand such a nominal charge per unit of use is to penalize the other subscribers not alone by a poorer quality of service caused by overloaded lines, but in higher rates resulting from the necessity of providing facilities in excess of economic needs. The bearing of flat rates on station development tends to be the reverse of that desired. Unlimited service is expensive service for the small users. Small users of little means are the existing marginal and potential subscribers to the system. To increase the number of subscribers or to develop the margin of extensive service usage to the fullest possible degree, rates must be made as low as possible to the small users. Service pricing on a use basis would logically favor the small users, as *by reason of their small use* rates would be relatively low. Flat rates of necessity based on the cost of serving the average subscriber in a given class mean higher rates to the small users whose service usage is below average. An objection that measured service "restricts telephone use"[48] is true in the sense of restricting the volume of use of existing subscribers, but not true in the sense of restricting service mutuality or extensive rather than intensive service usage. The reasonable restriction of the intensive use of facilities by measured rates

[46] "When registration is had at the central office it becomes possible to have all the metering devices located in one place where the company can give them the best attention and they can be read with the greatest economy. In the case of gas, electric light and water service meters, where the supply is furnished from common mains, metering devices must necessarily be on the consumer's premises, but in the case of telephone service furnished over individual wires to each subscriber, the registration devices can be placed anywhere on the line; and, by grouping them in one place the expense of maintenance is greatly reduced, the danger of breakage due to accident or carelessness minimized and the expense of reading the registers is tremendously less than if they were scattered thus on subscriber's premises." (*Re New York Telephone Company*, P. U. R. 1923 B 690.)

[47] *Ibid.*, at 640.

[48] *Ibid.*

may be regarded as beneficial rather than objectionable as previously stated.

Another objection that has been made against measured telephone service is that the meters do not accurately measure the service as "the telephone meter has not yet entirely passed the experimental stage."[49] While doubtless more or less experimentation in use of recording devices will continue, nevertheless, the message register has long been capable of recording with great exactitude message output on the part of subscribers.[50] While no device is foolproof or its operation perfect, message registers are apparently as accurate as electric, gas, or water meters. In case of inaccurate message registration the subscriber is usually favored, as the inaccuracy often arises through failure of the operator in a manual office to depress the registration key. In a case involving a complaint by a telephone subscriber alleging call-overregistration, the New York Commission held that the method of recording the number of telephone calls by means of message registers located in central offices was substantially accurate and satisfactory.[51] Subscribers have objected also to location of the meters in the central offices instead of on their premises where registration could be watched. While some subscribers would no doubt check call registration were meters so located, the majority of subscribers, in all likelihood, would manifest little interest, judging from customer observation and interest in electric, gas, and water meters.

The objections to measured telephone service are not new. The other major utilities have proceeded in the face of similar objections in establishing more scientific rates. That differential rate refinements based upon sound cost analyses and measurement of service usage have been highly beneficial to these utilities is accepted generally. Few customers and fewer utility managements would return willingly to the old flat rate basis of service pricing, even though service measurement for these utilities is a substantial item in total cost of service, particularly to domestic consumers.

[49] *Re Chesapeake and Potomac Telephone Company* (1911), 2 Ann. Rep. Md. P. S. C., p. 383.

[50] "Central office registers of the automatic type were first installed in New York city in 1902." (*Re New York Telephone Company*, P. U. R. 1923 B 687.) Hundreds of patents have been issued on telephone central office and substation metering devices.

[51] *Sacks v. New York Telephone Company*, P. U. R. 1925 D 497. See this case for a description of the process of message recording by registers. "From the summary of the results tabulated by the service observation bureaus in New York city in April, May, and June, 1921, it was found that a total of 73,948 calls were observed. Combining all undercharges and overcharges due to failure to press the register button, failure of sufficient pressure to make contact, registering of wrong numbers or abandoned calls without writing a credit ticket, etc., the net results show that the human operating force in handling this number of calls made a net overcharge of thirty-four one hundredths of one per cent. If this figure be taken in combination with the six-tenths of one per cent under-registration due to the mechanical operation of the registers, the result shows a total net undercharge due to both causes of twenty-six one hundredths of one per cent." (*Re New York Telephone Company*, P. U. R. 1923 B 689-690.)

Progress of Land Transfers in the Irish Free State

By S. J. BRANDENBURG

THE 26 counties which constitute the Irish Free State embrace slightly more than 17,000,000 acres (17,024,481 including smaller waters), much of which is mountain and bog. The present population is about 2,950,000. At the time of the famine (1846-7) about 3½ million acres were under tillage in corn, root, cabbage, and other green crops; slightly more than 8,000,000 acres were devoted to hay and pasture. The population at that time was something more than 6,000,000, a density of about 230 per square mile.[1]

Irish Land Reform from the middle of the 19th century to the present time presents a continuous program. The Free State Government in the main has carried out the policies laid down by earlier British parliaments and administrators, merely changing and improving details and speeding up the process. Since the achievements of the last 10 years can be adequately understood only as a continuance of the policy of the earlier period, a summary of Irish land reform prior to the establishment of the Free State Government is here given.

I. The Peasants under the British Regime

Social philosophers of the early 19th century saw national strength in numbers of people; and the economic as well as the political interests of the Irish landlords appeared to be best served by a dense rural population, driven by necessity to a desperate struggle for subsistence, and forced to pay the utmost farthing of rent for the use of even the most niggardly land.

Deepening Misery. Irish landlordism reached its worst stages as the mid-19th century approached. The repeal of the Corn Laws opened British markets to non-British producers of food-stuffs, and so induced domestic producers to shift from tilled crops to animals. This trend was pronounced in Ireland, whose land in large part is inferior for crop purposes, but excellent for pasture. Labor which was essential for tillage was superfluous for cattle raising. The overpopulation of the country was tragically emphasized by the famine. To the menace of hunger was now added the pressure of avaricious landowners, who found that a multitude of small tenants blocked the way to the larger farms required for hay and pasture. Such scanty tenant rights as law or custom had preserved were cast overboard. Evictions and clearances increased in numbers. The country was in turmoil; dispossessed families had the choice of starvation, beggary, or migration. Centuries of exploitation culminated in the devastating two decades that followed the famine.

Efforts to Mitigate Conditions of Tenancy. Early attempts at remedial measures failed, being denounced as confiscatory and as interference with

[1] All Ireland, i. e., the Free State, plus the six Ulster counties now organized as North Ireland, contains about 31,700 square miles. In 1845 the total Irish population was about 8,300,000, or approximately 260 per square mile.

"economic law". The Landlord and Tenant Act of 1870, introduced and carried through the British Parliament by Gladstone, sought by law to assure the Irish tenants generally certain minimum tenant rights prevalent in Ulster. This so-called Ulster custom assured to the tenant compensation for disturbance in his tenancy and for any unexhausted improvements made in the holding he was forced to quit. But Southern Ireland offered resistance to the Ulster custom. Exceptions from the benefit of the law were numerous; administrators and courts were awed by the fear of frustrating "economic laws"; and the powers of the landlords arbitrarily to raise rents were not abated. Although this Act was negative in practical results, its enactment by Parliament may be interpreted as an acceptance in principle by that body of the breakdown of laissez faire in landlord-tenant relationships.

The British demand for meat and dairy produce brought a measure of agricultural prosperity to Ireland, most of which was absorbed by landlords in higher rents. In the late seventies, American farm produce became a strong competitor in British markets; at the same time the Irish farmer suffered a succession of bad seasons. Rents which had been forced upward in happier years were not and could not be paid.

In the meantime the Land League, organized in 1879,[2] concentrated its growing power on the attainment of the objectives for which the tenants had long struggled—the "three F's": fair rents fixed by a disinterested body, fixity of tenure, and free sale by the tenant of his interest in a holding upon his quitting it. These demands were incorporated in the Act of 1881, along with provision for the creation of a Land Commission. One of the duties of this body was to set up sub-commissions in all parts of the country to hear appeals from either landlord or tenant, and after investigation to fix a statutory or "judicial rent" on an equitable basis. Fair rents so determined were not to be altered for 15 years. Under this Act and amendments rents were fixed for most of the agricultural holdings. This system of "dual ownership" brought some relief to tenants through the abatement of extreme rents; but it was unpopular with the landlords and proved illusory for many tenants. Both landlords and tenants became less willing to invest money in improvements. Appeals to the courts were numerous; dissatisfaction increased, particularly among reformers who aimed at an Irish "peasant proprietary." These judical rents played an important part in the later land transfers, particularly after 1923 (see p. 281 below).

Efforts to Promote Peasant Ownership. The Irish Church Act (1869) authorized sale of the former church lands to the tenant owners, and provided loans of a part of the purchase price from State funds. The benefits of this Act were available only to a small proportion of the tenant class and only a few thousand availed themselves of it. The Landlord and Tenant Act (1870) provided that the carrying through of sales agreements, voluntarily entered into by landlord and tenant, might be aided through advances of public funds amounting to about ⅔ of the agreed price; advances were to be repaid in 35 annuities at the rate of 5%. The transactions were under supervision

[2] The Land League was an association of agrarian reformers whose primary object was to establish the tiller of the soil as the sole owner of it—to abolish landlordism. The League flourished from 1879-1882. Its leading supporter was Michael Davitt who had been associated for a short time with Henry George in America.

of the Landed Estates Court. The Gladstone Act (1881) empowered the Land Commission to acquire lands, resell them to tenants, and to advance to the new purchaser ¾ of the purchase price. Repayment remained as before, 5% annuities for 35 years.

In 1885 the Ashbourne Act was passed. It put the sum of £5,000,000 at the disposal of the Land Commission (an additional £5,000,000 was made available in 1888)for purchase of estates for resale to tenants, and to assist in carrying through voluntary sales agreements made by landlord and tenants. Under this Act the entire purchase price was advanced by the Government; the tenant could become a purchaser without any down payment. The Government's only safeguard lay in its retention of ⅕ the purchase price for about 17 years, during which time annuities equivalent to this retained amount would be repaid. This, in effect, merely withheld a part of the purchase price from the seller, who, at the expiration of the period, might receive payment in full upon guaranteeing to be responsible for any future possible annuity defaults by the tenant-purchaser. The total advances were to be repaid in 4% annuities extending over a period of 49 years. The Balfour Act (1891) provided for the payment of the purchase price in Guaranteed Land Stocks, created for this purpose. These securities bore interest at 2¾% and were not to be redeemed for 30 years, although they might be exchanged for "consols"[3] at the option of the holder. Interest and sinking fund payments were provided for out of the 4% annuities paid to the Land Commission by the tenant purchasers, for a period of 49 years.[4]

Wyndham's Act (1903) is the most significant piece of agrarian legislation prior to the establishment of the Irish Free State. Earlier acts had provided for the transfer of individual holdings to tenant occupiers, each transaction being effected by a separate agreement. The new act empowered the Estates Commissioners, by expropriation if necessary, to acquire entire estates or such parts thereof as they regarded essential for purposes of the Act; also to improve holdings which, because of size or for other reason, were not economic units. Direct sales, from the landlord to his tenants, without official mediation, might also be made subject to the limitations of the Act. Transfer price was usually from 18 to 26 years' purchase of judicial or other equitable rents; but when the transaction was complete, the Government paid the recent owner an additional bonus of 12% of the purchase price. The rate of bonus was changed in 1909, being graduated from nothing to 18% and varying inversely with the number of years' purchase. To tenant purchasers, the Government advanced funds to be repaid in 3¼% annuities; 2¾% was for interest, and ½% for sinking fund. These easy terms extended the repayment period to 68½ years. But the interest rate proved too low to keep the stock at par, and in 1909 it was raised to 3% and the annuity to 3½% for future purchasers. The Evicted Tenants Act (1907) gave the

[3] Consols are British Government securities which under the law of 1888 had been converted from 3% to 2¾% interest, with the further provision that they should be reduced to 2½% in 1903.

[4] Provision was also made for setting up a Guarantee Fund, to be derived from rates (levies by local authorities for local purposes) and taxes (levies by national authorities), to take care of any possible deficiency in the interest and sinking funds. The amendment of 1896 based the annuities for the second and third decades on advances unpaid at the end of the previous decade. During the remainder of the period, until the debt was extinguished, the annuities were calculated on the advances outstanding at the end of the third decade.

Estates Commissioners power compulsorily to acquire lands to provide holdings for tenants, or their representatives, who had been evicted after 1878.

Summary. Until the outbreak of the World War transfers proceeded rapidly; but after 1914, normal activities were disrupted. The guaranteed stock, in which landlords typically were paid, depreciated and Ireland fell into the disorders of Civil War; so for a decade land purchase was practically at a standstill. Many transactions remained pending during this time; and in 1919 an Act was passed to provide land for soldiers and sailors who had served with the British forces during the War. At the time of the establishment of the Free State Government, in 1922, it is estimated that under these several laws over 9,000,000 acres had been transferred to about 253,000 small holders, an average of about 35½ acres per farm; to achieve this, the British Government had advanced about £92,000,000.[5]

II. Transfers under the Free State Government, 1922-1931

Completion of Pending Transactions. One of the important early enactments of the Free State Parliament was the Land Act of 1923, which virtually supplanted previous legislation. But negotiations entered into and commitments made under previous laws were carried through, so that the total transfers under the Acts passed prior to 1920, completed during the British regime and during the era of independence up to March 31, 1931, amounted to almost 11,300,000 acres, divided into about 314,500 holdings, an average of not quite 36 acres per farm. The total purchase price was nearly £101,700,000; of this total, governmental advances were about £99,845,000, and cash paid about £1,854,000 (Table I, especially item No. 9).

When the new Government assumed office in 1922, titles to slightly more than 11,000,000 acres, about ⅔ of the area of the Free State, had passed or were in process of passing to the occupiers. About 6,000,000 acres, perhaps ½ arable, remained to be dealt with. It was estimated that the additional transactions would involve further governmental outlays of from £25,000,000 to £30,000,000. But transfer activities had been virtually suspended for nearly a decade; it was generally recognized that the financial and other provisions contained in the Land Acts of the earlier regime were antiquated and would be increasingly ineffective as the years passed. At the same time, both political and economic exigencies urged a speedy completion of land transfers. A hurried investigation was made and, on the basis of facts so obtained, two measures were introduced and carried through the Free State Parliament in 1923.

The Land Law (Commission) Act, 1923. This measure, passed April 1, 1923, was primarily administrative. It confirmed the Land Commission established in earlier legislation, but extended its authority and jurisdiction by transferring to it the staff, assets, and powers

[5] Estimated by Mr. Martin Roddy, Parliamentary Secretary, Department of Lands and Fisheries. *Irish Times, Supplement,* January 21, 1932, p. 21.
"It is from these transactions that the £3,000,000 annuities, recently at issue between the present (de Valera) government and the British Government have their origin. The advances, largely in the form of 2¾ to 3% land stock (Table I), were to be amortized by 3¼ to 4% annuities, payable to the British exchequer. After the separation of the Irish Free State, under the Ultimate Financial Settlement (1926) between the two Governments, the Free State assumed responsibility for collecting the annuities from the peasant proprietors within her boundaries, and for transmitting this amount to the British Government. The British Government, in its turn, uses the sum to redeem the land stocks, held by some Irish as well as by British investors.

of the old Congested Districts Board (Act of 1891) and the Estates Commissioners (Act of 1903), which were dissolved. The Land Commission, as reconstituted, was made responsible for carrying through all transactions then pending (1923) under the earlier Imperial Land Acts and for carrying through the provisions of the new land act as described below. By subsequent enactments and executive orders the Land Commission was attached to the Ministry for Lands and Fisheries, in which Department it now functions.

Land Act, 1923. This Act became a law August 9, 1923; it was passed with the declaration that it was necessary to the preservation of public peace and order—an emergency measure, hence not subject to suspension for possible referendum.[6] The measure had two main purposes: to complete land purchase and to relieve congestion. It was more courageous in its conception and more inclusive and drastic in its provisions than any of the earlier acts. It applied to all lands substantially or partly agricultural or pastoral at the date of its passage.

First of all, this Act forgave all arrears of rent accumulated by tenants prior to 1920; arrears from 1920 to 1923 were reduced by 25%. These reduced arrears were to be collected by the Land Commission and turned over to whomsoever due, less income taxes and collection costs. All was taken out of the landlords' hands; the Land Commission was the transitional landlord. The Act further prescribed that all remaining tenanted agricultural lands (there were a few exceptions),[7] all untenanted land in the Congested Districts, and untenanted land elsewhere regarded as necessary for the relief of congestion, should, on days to be appointed by the Land Commission, vest in that body, which in turn should vest them as rapidly as possible in the tenant occupiers as owners in fee simple, subject to the payment of certain land annuities. But the Land Commission at its discretion might retain areas to be utilized for the improvement or enlargement of holdings in Congested Districts. These clauses, in effect, cancelled some payments which the landlords claimed, reduced others, and finally abolished altogether the landlord-tenant relationship in practically all arable land in the Free State. On the passing of the Act, tenants to whose holdings the Act applied ceased to be liable for the payment of rent, but pending determination of the purchase price of the land and its vesting by the Land Commission, the occupiers were liable for "payments in lieu of rent," approximately ¼ less than their former rents.

Purchase Price. In all this zeal to establish and protect the occupier in his ownership of a holding, the interests of the former landlord were not wholly forgotten. The purchase price, advanced to the landlords in the form of 4½% bonds, was made up of two parts; the "standard price" and the bonus. Interest on these bonds and their ultimate retirement were to be met by 4¾% annuities paid by the purchaser, ¼% being for sinking fund. The purchase annuity was based on rents and the standard price was therefore defined as a sum, the interest on which at 4¾% shall be equal to the purchase annuity for the holding. If the annuity was not to be unduly burdensome, the reasonableness of rents

[6] As provided in Irish Free State Constitution, Art. 47. Repealed as of July 12, 1928.

[7] These exceptions were: (1) untenanted land in demesne, home farm, park, garden, or pleasure ground; and the holding usually occupied by a person in connection with such lands; (2) lands held in trust for the State or any department of the Government; (3) lands held by local or public authorities or corporations for public purposes; (4) any "glebe," held by any ecclesiastical person (Land Act 1923, Sec. 24).

TABLE I. LANDS TRANSFERRED, FUNDS ADVANCED AND REPAYMENT ANNUITIES UNDER VARIOUS LAND ACTS, 1870 TO 1929, IN IRISH FREE STATE AREA, TO MARCH 31, 1931*

Laws and Dates of Enactment	Lands Transferred		Purchase Money				Annuities	
			Advances by State		Additional Cash Lodged† (£)	Total Price (£)	Rate (%)	No. of Years
	Number of Holdings	Area in Acres	Form of Advances	Amouut of Advances (£)				
1. Landlord and Tenant Act, 1870	469	34,924	Cash	347,480	239,839	587,319	4‡	35
2. Land Law Acts, 1881	530	19,439	Cash	174,735	83,421	258,156	4‡	35
3. Land Purchase Acts, 1885, 1887, 1888, 1889	16,099	682,996	Cash	7,196,283	146,483	7,342,766	4	49
4. Land Purchase Acts, 1891, 1896	41,562	1,311,673	Land Stock	10,853,501	214,435	11,067,936	4	43+
5. Irish Land Act, 1903	194,242	6,927,274	Cash and 2¾% stock	68,881,934	974,563	69,856,497	3¼	68½
6. Evicted Tenants' Act, 1907	735	25,370	Cash or 3% stock	389,046	.....	389,046	3¼ & 3½	65
7. Irish Land Acts, 1909, 1919	59,852	2,269,069	Cash or 3% stock	11,809,884	195,189	12,005,073	3½	65
8. Congested Districts Bd., Acts 1891-1920	1,000	28,287	Cash	191,725	.....	191,725	Various	....
9. Total Earlier Acts	314,489	11,299,032	.....	99,844,588	1,853,930	101,698,518	.....	....
10. Land Acts, 1923-1929	22,000	942,959	4½% Land Bonds	9,421,057	600	9,421,657	4¾	68½
11. Grand Total	336,489	12,241,991	.....	109,265,645	1,854,530	111,120,175	.....	....

* Adapted from Irish Land Commission, *Report*, 1931 (P. No. 550), p. 32. See also Irish Free State, *Statistical Abstract*, 1931 (P. No. 516), p. 55 and elsewhere.

† Additional cash lodged is down payments by the prospective owner; this is in addition to the advances made by the State as indicated in the two preceding columns. State advances under some laws were cash; under others, stock or securities; and under others, both cash and securities.

‡ Both documents from which data are taken give the rate as 4%. The Acts of 1870 and of 1881 specify 5% annuities (Compare p. 277 above), which should give an annuity period of about 35 years.

had to be carefully scrutinized. The major part of the tenanted land in 1923 was held subject to "judicial rents" (Act of 1881); for purposes of establishing the standard price, judicial rents were reduced by 35 or 30%, depending on whether they were fixed before or after August 15, 1911. The basic rents for tenanted lands held subject to other than judicial rents were to be fixed by agreements between landlords and tenants, or by the Land Commission if these parties failed to agree. Fair rents for untenanted lands, in default of agreement with the owner, were also to be fixed by the Land Commission.

A simple illustration will show the operation of the law. A tenancy is held at a judicial rent of £10, fixed after August 15, 1911. This, subject to 30% reduction, gives the standard purchase annuity of £7 which, capitalized at 4¾%, gives the standard purchase price of £147-7s-4.42d; to the standard price, the state contributes a bonus of 10%, making a total of £162-2s-1.26d or about 16.2 years' purchase, advanced to the owner in the form of 4½% bonds. The 4¾% annuities, paid in semi-annual installments over a period of 68½ years, constitute obligations no more burdensome than a moderate rental and procure at the outset all the reputed gains of occupier-ownership. These gains are believed to be so substantial that the state regards it worth while to subsidize the conversion process from tenant to owner by the 10% bonus. Basic rents, upon which the standard price is computed, are so adjusted that the total purchase price (state bonus included) amounts generally to about 15 to 16 years' purchase.

Progress of Land Purchase after 1923. The new law contained some untried features and its compulsory character threw a sudden burden on the reorganized Land Commission. The Free State was rushing to completion a land system which aimed not only at permanency, but at maximum satisfaction of the prospective owners. In addition to untenanted lands, there remained to be dealt with in 1923 about 6,000 estates embracing nearly 3,000,000 acres, divided into nearly 100,000 holdings. Details of each of these holdings must be finally adjusted. Areas, boundaries, tenures, customary rights of turbary,[8] of access, etc., must be determined. To these details were added the duties of collecting the compounded arrears of rent and payments in lieu of rent. Further laws, designed to simplify and systematize some of these processes with a view to expediting transfers, were enacted in each year from 1925 to 1929. But the rate of progress remained unsatisfactory, as may be seen from the summary of the status of tenanted lands up to March 31, 1931, a period of about 7½ years' operation of the new law (Table II).

TABLE II. TENANTED LAND TRANSFERS, IRISH FREE STATE, LAND LAWS 1923-29, TO MARCH 31, 1931.*

	Vested in Land Commission	Remaining to be Vested	Total
Number of holdings	15,971	80,652	96,623
Area in acres	578,210	2,322,000	2,900,210
Total yearly rent	£334,594	.....	.....
Standard price†	£4,580,242	.....	.....
Price paid owners†	£5,143,148	.....	.....

*Irish Land Commissioners, *Report* for the period ended March 31, 1931, pp. 18 and 40.

† See p. 279 above.

Many more transactions were pending, some well on the way to completion; also the Commission had acquired by purchase and otherwise a considerable area of untenanted land, which, it was estimated, would in time provide for the creation or enlargement of a goodly number of holdings. But the fact remained

[8] A right to dig turf.

that the Commission, after 7½ years of work, had converted fewer than 16,000 tenants into owners, an average of slightly more than 2,000 a year. To be sure, much time and effort had been required at the beginning to set up the new system as prescribed by law; many of the staff were new and inexperienced; and the war and civil strife had left Ireland in chaos. The rate of progress increased from year to year; but while 16,000 transactions were being completed, more than six times this many were accumulating and awaiting attention. It was recognized that, without expensive increases in the staff of the Land Commission, it would be impossible to vest these holdings in the proprietors in a shorter time than 10 or 15 years. Meanwhile, payments in lieu of rent would further complicate the situation and uncertainty would continue. But most important of all, it was realized that individual and national prosperity and stability, anticipated as the fine fruit of proprietorship, would be deferred.

Land Act, 1931. To avoid the consequences of these delays and to realize at once some of the advantages of completed proprietorship were the chief purposes of the Land Act of 1931. This Act in substance provided that on an appointed day (afterwards fixed as May 1, 1931) the remaining tenanted lands should vest in the Commission, and the tenants thereon from that date should be put on the annuity basis in respect to their half-yearly payments; payments in lieu of rent were thereupon to be terminated. This, in effect, gave the tenants the immediate benefit of reduced payments as provided for in the Act of 1923, and conferred upon them other advantages of ownership without delay for adjustment of particulars. Final and complete vesting in the occupier must await the final settlement of all details such as disputed areas, boundaries, tenure rights, etc.; but in the meantime the occupier enjoys practical ownership. By March 31, 1932 practically all the 80,000 odd holdings "remaining to be vested," as cited in Table II, had in effect passed to the occupiers. This means that the ideal of universal peasant proprietorship has substantially been attained, although many administrative details remain to be finally adjusted.

III. The Congested Districts

The western coast of Ireland is a bleak region, less favored by nature than any other part of that meagerly favored Island. This area of mountains, rocks, and bogs receives the first impact of the driving North Atlantic storms. Arable land is scarce, rainfall is superabundant, drainage difficult, and sunshine rare. Here one may walk for hours without seeing a human habitation, and rarely a human being; yet in these "Congested Districts" live nearly ⅛ of the population of the Irish Free State. Here rural economic misery is most acute. Forty years ago living conditions were so bad that a Royal Commission described the inhabitants as "to a large extent the wrecks of past racial, religious, agrarian and social storms in Ireland and of famine catastrophes, who, in a bad year, are saved from extreme privation only by relief measures."[9] In 1891, a Congested District was defined as a region where more than 20% of the people lived in electoral divisions in which the per capita ratable poor law valuation[10] was less than 30 shillings. Later (1900) the entire counties of Donegal, Sligo, Leitrim,

[9] Quoted in *Irish Times, Supplement,* January 21, 1932.

[10] The yearly value as estimated for the purpose of levying the Poor Rates.

Roscommon, Mayo, Galway, Kerry, six rural districts of County Clare, and four in West Cork were included under this designation. Gradually the problem has come to be recognized not so much as one of locality as of the condition of the people. The term is now applied to any district where a considerable number of the holdings are of such size or quality as not to afford a reasonable means of livelihood to the families resident thereon.

The Congested Districts Board, created in 1891 and reconstituted with enlarged powers in 1909, was charged with the special task of providing economic holdings for the people of these niggardly regions. To accomplish this purpose the Board was empowered to acquire untenanted land in the neighborhood and use it to enlarge uneconomic holdings; to transfer families when feasible from the Congested District to new holdings in other neighborhoods and use the land thus vacated to enlarge existing holdings in the congested area; to improve untenanted land and to reclaim submarginal lands by building, fencing, draining etc., so as to add new areas to the scanty supply of arable lands of these western counties.

All such tasks of the earlier Board are among the duties of the present Land Commission. In addition, the Land Act of 1923 (Sec. 24) gives the Commission power compulsorily to acquire all untenanted lands in the counties of the Congested Districts and elsewhere when, in the judgment of the Commission, such other lands are thought necessary for the relief of congestion, or for facilitating sales. Untenanted land acquired by the Commission is to be utilized for the creation of new holdings or the enlargement of existing holdings. The Commission is given wide discretionary powers to resell, or to retain and administer certain lands for the purposes of (1) increasing total food production, (2) settling tenants transferred from crowded regions, and (3) compensating former tenants who had been evicted and former laborers on estates which had been sold. But the Commission must satisfy itself that the person who receives land is competent to work it, intends to do so, and does not intend to sell, let, or assign it.

Untenanted Land. Since 1923 the Land Commission has acquired 390,000 acres of untenanted land at a price of about £4,350,000 in land bonds; in addition, it received about 160,000 acres from the earlier land administration, a total of 550,000 acres available for distribution. Of this it had divided, to March 31, 1931, about 460,000 acres among more than 20,000 allotments.[11] These are not all new farms; many acres went to augment existing uneconomic holdings. The total formerly untenanted land now occupied, including the 750,000 acres distributed under the old regime, amounts to nearly 1,250,000 acres. Of this total, ⅔ to ¾ is in regions defined as Congested Districts. The Land Commission has under investigation, with a view to purchase, an additional 800,000 acres; but much of it is of a discouragingly low grade. Areas to which scanty commonage rights formerly attached, or which were wholly waste, are being reclaimed. The agents of the Commission, according to the requirements of any particular tract, clear the area of stones and other obstructions, drain, lime, fence, and divide it into allotments, and construct roads; they construct necessary buildings, and in some cases assist in the provision and planting of seed, shrubs, etc. The price of

[11] The Estates Commissioners and the Congested Districts Board, prior to 1923, had allotted about 750,000 acres.

untenanted lands is agreed upon by the seller and the Land Commission; or failing agreement, the Commission may establish a price. Funds for purchase, 4½% bonds repayable by 4¾% annuities, are advanced by the Government the same as for tenanted lands.

One may conclude that the maximum amount of formerly waste and untenanted land, including the reclaimed areas which can be utilized even with generous state subsidies, will not exceed 2,000,000 acres. The question as to whether this exorbitant outlay of money and labor for the conversion of submarginal land into marginal peasant homesteads is justified may not finally be answered for a generation.

Migration. In many districts the area of untenanted or reclaimable land is inadequate to local needs; or, holdings may be so broken and intermixed (survivals of the strip system) that a rearrangement is essential to economic utilization. Under these circumstances, the interests of various parties must be acquired and reassembled in unitary economic holdings. This means that those occupiers whose rights are assigned to others must be compensated by equivalent interests elsewhere.

It frequently happens that an equivalent in area or value of land taken for relief of congestion can be awarded to the dispossessed occupier only in another county; this is particularly true in regard to the larger holdings. It is usually necessary to re-establish these farmers in another less congested county.[12] Such transfers are generally referred to as *exchanges*. A majority of these larger holders who have been squeezed out of the congested Western Counties have been resettled in the central counties of Meath, Westmeath, and Kildare. *Local migrations* refer to transfers from one part to another of the same estate or county. While such movements are less noticeable than the *exchanges* referred to above, they are numerous and necessary, for it is chiefly by these means that typical holdings can be rearranged, unified, or enlarged. The procedure requires tact and patience; families living in abject misery on inadequate holdings often refuse to migrate or even to consent to moderate rearrangements essential to adequate cultivation of the lands. The Irish peasant has strong local attachments. Even the adjacent county with its different scenery, new methods of farming, strange faces, perhaps strange language (Gaelic is vernacular with a majority in the Western Counties.) is a foreign country. Family and clan lines are drawn tightly; "strangers" are regarded, if not as enemies, at least as intruders.

The process of migration is costly to the state. The expense for equipment, improvements, etc., runs from £350, a low estimate for a small migrant, to as much as £1,800 for a large migrant. A part of this outlay can be recouped from purchase annuities when the properties vacated by the migrant are resold. But a smaller proportionate amount can be collected from the smaller migrants who are most numerous.

State Aided Improvements. The newly created, rearranged, or enlarged holdings usually require variable amounts of improvements before they may be occupied. Fences, buildings, drains, roads,

[12] "Congested" here refers to a county which has farmers out of proportion to its resources; that is, in these barren western counties referred to in the later sentences, there are more people than can gain a living. In some of the central counties and elsewhere are large farms devoted in particular to pasturage. The process is to take the devotee of spade culture out of the congested county and establish him in the central counties where it is hoped his tilled crops will replace some of the present pasture and hay fields.

and other obviously necessary betterments are made by the Land Commission. Since 1923 public advances to the amount of about £1,650,000 have been made for these purposes. In addition, the Land Commission has expended £450,000 in special improvement projects planned for the relief of unemployment and distress. More than half of the combined total of £2,100,000 has been spent in the five western counties which include most of the Congested Districts. So much of these expenditures as the Land Commission considers the purchaser can repay without undue hardship is made repayable along with the purchase annuities. It is estimated that less than half will be ultimately repaid.

Summary. The whole problem of relief of the Congested Districts is an expensive one. The acquisition, improvement, reclamation, and reallotment of untenanted and waste lands, the rearrangement and enlargement of holdings, the establishment of peasant proprietors on economic units, the provision of sanitary housing,[13] the promotion of better farming practice, better seeds, better animals, the encouragement of bye-industries,[14] assisted migration within the state; these are all parts of an expensive program. But regardless of cost, the Free State Government continues to advance this policy; clearance of the rural slum is a necessary preliminary to the establishment of a permanently higher plane of living so ardently desired for these long suffering regions.

IV. The Achievement and the Prospect

Through the centuries the question of land control has remained the most urgent and the most difficult problem of the Irish people; unfortunate land relationships have been a chief source of Irish economic servitude. Land grievances embittered politics; home rule was a mockery, even nationalism a delusion, while the land was in bondage. After two generations of accelerating agitation and effort, the part of Ireland included in the Irish Free State is in sight of the goal; it sees the end of its "agrarian revolution." Nearly 15,000,000 of the country's 17,000,000 acres have been vested in nearly 400,000 owner-operators. Landlordism is all but abolished, and a nation of peasant proprietors is in process of achievement.

The total price of lands transferred amounts to about £125,000,000; and more than £5,000,000 additional have been spent on rural improvements and land reclamation projects. Of the combined sum all but a small fraction has been advanced by the State and will be repaid, in whole or in part, by terminable annuities extending from 35 to 68½ years.

At the present time, roughly speaking, 1,500,000 acres are under tillage, producing corn, fruit, roots, cabbage, and other green crops; 2,300,000 acres are in

[13] See article by the writer in 8 *Journal of Land & Public Utility Economics* 1-10 (February, 1932).

[14] The national promotion of all practicable subsidiary industries is an acknowledgement that even improved agriculture will be inadequate to maintain the population of these districts. Chief among the other activities encouraged by the Land Commission and other agencies of the Department of Lands and Fisheries are: the production of kelp; of carrageen, or Irish moss, a gelatinous marine plant used for industrial and culinary purposes; sea and inland fisheries; cottage handicrafts, such as hand woven tweeds, homespuns, knitted goods, embroidery, and lace-making. Loans for equipment and materials, instruction in the best methods of production, promotion of cooperative associations for production and marketing are the chief forms that state intervention takes. For the cottage textile industries, assistance is also given in producing new and marketable designs, and in procuring raw materials. Dependable quality is constantly emphasized. The Gaeltacht Industries Depot, Dublin, maintains a complete stock of the products for the trade. Its trademark, the "Round Tower", is used only on goods that meet prescribed standards; it approximates a state guarantee.

hay, and 8,100,000 in pasture; 5,000,000 acres are grazed and barren mountain, turf, bog, water, roadways, etc.[15]

Anticipated results of the new agricultural order are economic prosperity and social and political stability. While prosperity and stability advance together, the former is probably fundamental. Some of the holdings referred to above are obviously too small for economic utilization even under agricultural methods prevalent in Ireland, while the larger ones promise only a meager life. For example, almost 80% of the present holdings are 50 acres or less in size; more than 85% have a valuation not exceeding £30.[16] But supplementary industries intelligently developed may mitigate conditions for some families; and the prohibition on subdivision of holdings, except with the approval of the Land Commission, should prevent the splitting up of lands which was a fruitful cause of "congestion" in the past.

The wisest land legislation and the most effective land program can hardly yield all the blessings that men want and reformers promise. The system now established commits the Free State predominantly to small-scale, self-sustaining agriculture; stability seems assured, but at a low present level. Security of tenure with its stimulus to improvement, along with other ameliorative forces operative in rural life (better schools and roads, improved local administration, cooperatives and other community enterprises) will, the leaders believe, raise Irish well-being to a plane not lower than that enjoyed by the rural majorities of other small, compact European states.

[15] The population today is about 2,950,000. Compare similar summary for famine period, p. 275 above.

[16] These estimates are based on data in Irish Free State, *Statistical Abstract*, 1931, pp. 36-37.

The Opposition to Public Utility Appliance Merchandising

By RICHARD A. HARVILL

I. Introduction

BEFORE an appropriate solution of the controversy over public utility appliance merchandising can be reached, either by the parties directly interested or by agencies of public control, a careful examination must be made of the reasons advanced for and objections to the prevailing system of merchandising. Various reasons may be given for analyzing first the "opposition" to utility appliance merchandising. The opposition is relatively less articulate than are the utilities, largely for the reason that its ranks are recruited from a variety of groups. To discover, therefore, the precise nature of the attack requires a classification and organization of its arguments. Furthermore, the utilities are on the defensive and to analyze the attack seems the more logical and fruitful point of departure. The following discussion, therefore, will constitute a descriptive analysis of the opposition's arguments, including a brief characterization of the different economic groups interested in the appliance market, the nature of their complaints, and some consideration of the methods they have used and the results they have achieved.

While a similar scrutiny of the position of the utilities is necessary and properly a separate study, any analysis of the opposition must of necessity introduce some indication of the utilities' position as well as some reference to the interests of the public which has an equal stake in this controversy. Briefly the utilities are interested primarily in securing customer use of quality appliances of such types and in such volume as will insure more complete and continued utilization of plant generation and distribution facilities. The public wants not only efficient appliances but also adequate and efficient gas and electric service at the lowest possible rates. These interests are indicated at numerous points in the subsequent discussion, but only in their relation to the attack of the opposition. They are being dealt with separately by the writer in other portions of this study,[1] for only from an equally impartial survey of all these three points of view will any adequate solution of the difficulty be forthcoming.

Finally, it should be borne in mind that this controversy is not of recent origin. It has waxed and waned in relation to the aggressiveness of utility merchandising tactics, the state of the arts with respect to the various appliances, and the general business conditions at a given period. The present situation, therefore, is not different from that in past periods, unless perhaps in its virulence as a result of the multiplication of appliances and the increase in number of parties concerned, both caused by the general expansion of the gas and electric industries in the post-war era.

II. Economic Groups Interested in Appliance Distribution

Obviously retailers are not the only group interested in the retail appliance

[1] J. S. Dial, Scholar in the Institute for Economic Research, is associated with the writer in the utility merchandising study. Mr. Dial's special problem is dealer-utility cooperation.

marketing problem. At least two major groups—manufacturers and wholesalers—in addition to the various retail groups themselves have very definite interests in appliance distribution.

Manufacturers of both gas and electric appliances want to see the expansion of retail outlets in every way that will insure an efficient and stable distribution system. Although for the most part they are maintaining a very conservative position with respect to the controversy over utility merchandising, many of them frankly state that they are eager for the utilities to continue in the merchandising business and "view with alarm" the agitation for legislation to remove the utilities from this field. They feel that other sellers cannot do the pioneering and promotional work now being done by the public service companies and, even though the latter might continue to perform these functions, there is danger of lessened aggressiveness and reduced effectiveness if the utilities are prohibited from actual selling. The manufacturers are very reluctant to assume the leadership in developmental operations. They are equally reluctant to leave this burden to the wholesale distributors and retail outlets which have neither the financial resources nor the particularly convenient connection with the consumer market which the utilities possess.

The wholesaler continues to be an essential element in the distribution of electrical and gas appliances.[2] While gas and electric utility companies buy most of their generation and distribution apparatus and equipment and many of the larger-unit household devices direct from manufacturers, they still find the specialized services of the wholesaler economically advantageous when purchasing fixtures and many appliances adapted to household use. With the exception of a few outlets, such as the larger department, hardware, furniture and house-furnishing stores, which are able to make part of their purchases direct from the manufacturer, the wholesalers serve the non-utility retail outlets.

Recently many electrical wholesalers handling both electrical supplies and appliances have felt it necessary to specialize in one or the other class of products. On the other hand, wholesalers who formerly specialized in one line of appliances, e. g., radios or refrigerators, have been forced to abandon the practice and distribute appliances of all kinds ranging from washing machines to curling irons.[3] Leaders in the electrical wholesaling industry view this twofold movement as a long stride toward solving the electrical wholesalers' present difficulties. Generally speaking, the wholesalers are in accord with the manufacturers in wanting to see the utilities remain in the retail merchandising business. However, exceptions exist among each of these groups and the nature of their complaints will be pointed out subsequently.

The group of retailers of domestic appliances for use of gas and electricity is composed of such a mass of heterogeneous[4] organizations that little more than a bare enumeration of the important classes can be given here. Gas and gas-electric utilities, plumber-dealers and heating contractor-dealers,[5] hardware

[2] Appliances are the household units such as refrigerators, irons, and ranges; supplies include switches, transformers, meters, insulators, lighting fixtures, apparatus, etc.

[3] "The New Era in Electrical Wholesaling," 13 *Electrical Wholesaling* 5 (January, 1932); "The R. W. A. Becomes a Specialty Distributor Association," 13 *Electrical Wholesaling* 32 (February, 1932).

[4] Heterogeneous from the standpoint of character and size of business, financial resources, methods of operation, etc.

[5] The "plumber" and "heating contractor" as such

(*Footnote 5 continued on page 289*)

stores, furniture and house-furnishing stores, and department stores are the chief vendors of household gas appliances.

Retailers of electric appliances fall into two classes: the so-called "electrical" group and the "non-electrical" group. The former is composed of electric utility companies,[6] electrical stores, electrical specialty stores,[7] and contractor-dealers.[8]

The "non-electrical" group comprises a variety of types of retail outlets, including independent department, hardware, furniture and house-furnishing, and drug stores, automobile supply shops, chain stores in each of these lines, mail order houses, and miscellaneous other groups. While not all these various retail groups, nor all retailers of any one group, are united in their views on utility merchandising, rather general irritation at the selling policies and practices of utility companies has been prevalent among them for the past few years. Opposition which at first was localized within relatively small areas without coordinated organization and leadership has ceased to be a voice in the wilderness and has become a potent influence with which state and national trades and government organizations are beginning to reckon.[9]

Much difficulty arises in attempting to identify specific trade groups which favor or oppose utility merchandising per se. Individual electrical contractors and plumbers and the respective trade organizations representing these groups want public service companies to withdraw from all installation and servicing activity. There is no such distinct unity in their attitudes toward utility appliance selling. The majority of small contractors or plumbers, dominated by purely acquisitive motives and viewing the problem through the narrow perspective of personal gain, will concede no justification for utility merchandising. Similarly the small hardware and furniture dealers demand that utilities stop selling appliances. Large furniture and hardware dealers are not so severe in their criticism of utility merchandising. The same is true of department stores. Many buyers, especially women, like to patronize department stores and will buy

(*Footnote 5 continued from page 288*)
do not sell appliances but confine their attention to installation and servicing. The "plumber-dealer" and "heating contractor-dealer" do both. Although many gas utility companies still give these services, the tendency is toward their abandonment where efficient plumber and contractor services are available as in larger cities and towns.

[6] Merchandising is done either by a department within the operating company or by a separate corporate entity directly affiliated with the utility operating company.

[7] "Electrical stores" carry a variety of appliances exclusively and do no housewiring and contracting work. "Electrical specialty stores" confine their sales activity to one or two larger appliances—refrigerators, washing machines, etc.—and often employ house-to-house canvassers.

[8] A "contractor-dealer" is one who does wiring and installation work and also appliance selling. The contractor proper does only the former.

[9] No accurate figures have yet been compiled to show the proportion of appliance sales by each of these groups for the United States as a whole. It is generally recognized that the utility companies sell a larger percentage of the total in smaller towns and rural sections than in the large cities; also that the utilities' volume of sales is made up largely of heavier-duty appliances which are more difficult to sell. According to J. F. Owens of the Electrical Merchandising Joint Committee, in 1930 electric utility companies made about 30% of the total volume of electrical appliance sales in the United States. Ranges, refrigerators, and water heaters accounted for the major portion of this 30%. In larger cities utilities sell as low as 15% of the total electric appliances, and in smaller towns as high as 40%, according to Owens. J. F. Gilchrist, Vice President of the Commonwealth Edison Company of Chicago, says that the Edison Company made only 10% of the electrical appliance sales in Chicago in 1930.

In Kansas, utility companies did between 80% and 90% of the appliance business in 1930. (Decision of the District Court of Shawnee County in *Capital Gas and Electric Co. et al v. Roland Boynton, Attorney General*, October, 1931.)

Statistics showing distribution of gas appliance sales are even more incomplete than those for electric appliance sales.

appliances from them regardless of the merchandising aggressiveness of the utilities. Moreover, the larger department, furniture, and furniture and house-furnishing stores can and do offer prices and time-payment terms which compare favorably with those given by utility merchandising departments.

III. The Opposition's Case

Complainants against the utilities in the merchandising dispute may be divided into two main groups: the "prohibitionists" and the "reformers." The "prohibitionists" demand legislative prohibition of utility appliance merchandising. The "reformers" contend that public service companies may appropriately continue to sell appliances if certain "unfair" practices are stopped. The distinction between the two groups, as far as complaints are concerned, is largely one of degree, but a clear differentiation exists between the solutions they seek.

Complaints of the "Prohibitionists"

Appliance Merchandising a Competitive Business. The fundamental basis for demanding that utilities cease appliance merchandising is found in the character of the merchandising business as distinguished from the primary function of the utility company, that of providing gas and electric service. It is urged that, whereas experience has demonstrated that a controlled monopoly can better serve the public with gas and electricity, appliance retailing is by its very nature adapted to competitive conditions. Appliance merchandising is not an activity requiring heavy fixed capital outlays, is unaffected to any marked degree by decreasing cost, and hence is not a "natural" monopoly; a license from the state is not required in order to enter this business; in purchasing appliances the buyer is not "at the mercy" of the seller; and, finally, the "public's convenience and necessity" do not require that the utilities sell appliances.[10] To opponents of utility appliance merchandising a situation is anomalous which permits any business sheltered by publicly granted, special privileges to use such advantages in competition with economic groups engaged in another line of endeavor.[11] One such advantage is the possibility of charging "losses" of merchandising departments to operating accounts and recovering such losses in rates charged to all users of gas and electric service. If such an opportunity is grasped, the utility is enabled to use selling and pricing policies[12] with which

[10] See pamphlets written and published by Merchant and Evans Company (Philadelphia): "A Protest Against Public Utility Monopoly Competition in Electric and Gas Appliances Based on Complaint Before Federal Trade Commission," 1929; and "An Open Letter to United States Senators and Congressmen," 1930. Copy of an address by Charles B. Shaeffer before the National Hardware Manufacturers Association, Chicago, October 20, 1931, distributed by Headquarters, Fair Merchandising Association, Kansas City, Missouri; for the purely legal arguments against merchandising see "Brief of Appellant" before the Supreme Court in *Commonwealth of Pennsylvania, ex rel. Thomas & Baldridge v. Philadelphia Electric Company*, 300 Pa. 577 (1930).

[11] The following arguments are given as supporting evidence that appliance merchandising is not regarded as a regulated utility function: under prevailing statutory laws regulatory commissions cannot require public service companies to sell appliances; where appliances are sold, the commissioners cannot exercise direct control over pricing and selling policies; and utility companies, in some states because of commission rulings, cannot disconnect customers from gas and electric lines when merchandise bills are unpaid. In most states the power to merchandise has been developed and upheld by resort to the doctrine of "implied powers:" appliance merchandising, though a non-utility function, is properly incidental to the main function of giving light, heat, and power.

[12] "Extravagant showroom schemes; advertising programs; swarms of employees and salesmen; compensation in salaries, plus general, plus special, plus quantity commissions; free gifts, plus discounts on new, plus heavy, periodic cut-rates on most devices; little or no down-payment; unduly long and cheap financing; large allowances; low or free installation; free service and repairs for very long periods; and free trial consignments

(*Footnote 12 continued on page 291*)

self-supporting merchandising departments of dealers cannot compete. Other alleged unfair merchandising advantages enjoyed by utilities arise from the peculiarly favorable customer contacts which they possess. These include: a list of gas and electric users, which constitutes a prospect list for appliances; sales through bill collectors and service men who can gain ready entrance to the premises of customers; billing of appliance installment sales on the monthly bills for gas and electric services, at the same time enclosing appliance advertisements in those bills; credit and collection advantages because of the unwitting belief of customers that, if bills for appliances are unpaid, gas and electric service will be disconnected; representatives and employees posing as experts, and regarded as such by customers, condemning merchandise carried by the dealer to get business from him.[13]

Utility Purchasing. Another important class of complaints from those who would have the utilities cease their selling activities is concerned with utility purchasing policies and practices. The very size of utility companies is claimed to give them purchasing advantages which dealers do not possess. Quantity discounts and special concessions can be secured from manufacturers and wholesalers (especially in cases where buying arrangements for a number of operating companies are made by parent holding or management companies) who, if they dare refuse to grant these demands, lose future utility business. Utilities are said to engage directly in the manufacture of appliances in some instances; to exercise dominant control through "community of interest" in other cases;[14] and to own or control wholesale distribution companies through which central stations buy appliances for resale to their customers in still other instances. These utility-controlled, wholesale distribution houses do not sell to non-utility retail outlets.[15] The alleged effect of utility participation in these so-called ultra vires forms of activity is restraint of trade in violation of state public utility laws, charter grants of power, the Federal Trade Commission Act, the Clayton Anti-Trust Act, and state anti-trust acts.

Utility Servicing. In addition to

(*Footnote 12 continued from page 290*)
with heavy recovery and reconditioning costs." (Merchant and Evans Company, "A Protest Against Public Utility Monopoly Competition, etc.," part 25). See also "25 Reasons Why Gas and Electric Companies Should Not Sell Appliances," *So the People May Know* (Monthly Bulletin of the American Bureau of Commerce, Kansas City, Missouri) September, 1930. The secretary-treasurer of one important retail hardware association in a letter to the writer states: "The writer could supply you with volumes sufficient to crowd the New York Public Library to extreme, with unfair practices and specific examples."

[13] In addition to the citations in notes 10 and 12, the following contain a discussion of alleged utility practices: hearings before the Sub-Committee of the House Committee on Public Utilities of the Illinois State Legislature, in re House Bill 546, May 13, 20, 23, 1931; hearings before the Railroad Commission of Wisconsin, U-3892, November 29, 1929, and March 11, 1930; "Brief for Use in Connection with Bills to Regulate Pipe Line and Power Transmission Companies" (Prepared by W. H. Walton, American Bureau of Commerce, Cleveland, Ohio, and sent to Senator Capper); Shaeffer, Charles B., "The Public Holds the Utility Merchandising Bag," *Hardware World*, December, 1931, pp. 53-54; *Illinois Fair Trade Commission News* (Rockford, Ill.), January, 1932; editions of *Rate Payer*, (Monthly Bulletin of American Bureau of Commerce, Cleveland, Ohio), November, 1931–March, 1932; Williams, Fred, "Utility Merchandising Not Segregated Despite Law," 4 *Monthly Review* (National Retail Furniture Association) 4 (October, 1930); "How Furniture Dealers View Utility Merchandising," 5 *Monthly Review* 17-19 (March, 1931).

[14] Some alleged examples are: the Welsbach, General Electric, and Servel Manufacturing Companies alleged to be closely affiliated with United Gas Improvement, Electric Bond and Share, and New York Edison Companies, respectively.

[15] A commonly cited example is the Federal Merchandising Company, distributor for Federal Electric Company, a manufacturing company, both of which are controlled by the former Insull interests. No other specific example of utility controlled wholesale houses has been given, and in so far as the writer has been able to determine there are no other examples.

attacking utility practices in the purchase and sale of gas and electric appliances as such, the opposition objects to utility "servicing" of appliances on customers' premises. Plumbers and heating contractors and electrical contractors, many of whom are also dealers in appliances, sell these services on gas and electrical appliances. They maintain that they are prepared to render efficient contracting services if public service companies will abandon this form of activity.[16] Basically, their claims[17] of unfair competition, like the claims of dealers in appliances, have their basis in the distinction between sheltered and competitive forms of business.[18]

Complaints against Utility Lamp Policies. Complaints against the lamp policies of certain electric companies constitute a distinct phase of the opposition to utility merchandising per se. When incandescent lamps first began to be used central stations furnished them without separate charge to encourage the use of electricity. The practice has never been abandoned entirely. Although some utility companies do not handle lamps at all and others sell them at standard retail prices, many continue either to furnish lamps and lamp renewals without direct charge to their customers or sell them at cut prices. Of course, the cost of furnishing this type of service is included in operating expense and charged for in the rate schedule covering lighting service.[19] The policy of public service commissions in allowing the free lamp renewals means essentially that lamps are taken from the category of "merchandise" and placed in the class of "utility" business.

Excepting those manufacturers and wholesalers who sell lamps in large volume to central stations, the entire non-utility division of the electrical industry seems opposed to free-lamp-renewal practices. Without exaggeration it may be said that, if central stations were to give up the free-lamp-renewal practice in localities where it is now in vogue, a major cause for complaint against utility merchandising would be removed. The consignment form of contract under which the lamps may be secured permits the dealer to handle lamps without

[16] Furthermore, where these independent service groups are strongly unionized, they object to the lower wage scales of the utility companies. Complaints based upon lower wage scales of utility companies are not widespread. Such complaints have been made in a few localities. Utility wage rates are lower than rates maintained by labor organizations for similar services in a few instances within the writer's knowledge.

[17] See editorial, "Public Utilities," *Plumbers and Heating Contractors Trade Journal*, October 1, 1931, p. 1; "The Unfair Competition of the Public Utilities," *Ibid.*, August, 1930, pp. 6-8; "Utility Rivalry and Cooperation," *Ibid.*, December, 1930; *The Ladle*, editorial, October, 1930, p. 596. While most plumbers and heating contractors apparently would like to see the utilities completely out of the merchandising business, the demands of electrical contractors as a group are not so strong. They merely want certain unfair practices stopped. Moreover, excellent plumber-gas company relations exist in many localities—rather generally in the East—where active cooperation is practiced. For example, the Louisiana branch of the Louisiana-Mississippi Association of Plumbing and Heating Contractors refused to be a party to a resolution against utility merchandising, because it had satisfactory cooperative agreements with the utilities *is Southern Plumber* May, 1931, p. 14). In Chicago the Peoples Gas Light and Coke Company has left practically all installation work to the plumber and the Commonwealth Edison Company leaves wiring to the contractors. The Chicago Contractors Association is satisfied with the prevailing arrangement, but the Chicago Master Contractors Association claims discrimination against its members by the Edison Company. For a description of another successful, cooperative plumber-gas utility plan see: "New Orleans Masters and Utility Have Successful Cooperative Plan," *Domestic Engineering*, March 21, 1931, p. 62.

[18] In servicing appliances central stations oftentimes are charged with discrimination against appliances which they do not sell. These charges are made largely by dealers who do not have servicing facilities. Dealers who possess such facilities have a twofold advantage in doing the servicing work: the receipt of income from work done and the retention of customer contacts which are an aid in selling appliances.

[19] See article by writer, "Regulation of Public Utility Appliance Merchandising," 8 *Journal of Land & Public Utility Economics* 74 at 84-5 (February, 1932).

tying up his capital in lamp stocks. Where public service companies furnish this lamp service, dealers lose not only the sales of lamps but also many other sales which might be made to customers who would come to the stores for lamps.[20]

Complainants against the free-lamp-renewal practice refuse to accept explanations of the reasons for continuing the practice: namely, the necessity of maintaining standard quality lamps which will render efficient lighting service at the lowest possible cost;[21] franchise provisions which require the companies to furnish this lamp service; and long prevailing rate structures in which allowances for this type of service are incorporated. In the first place, they argue that the sale of inferior quality lamps by non-utility outlets is not as universal a condition as the utilities claim and, where it is prevalent, dealers have been driven to it by unfair competition of the utilities.[22] Utility arguments based upon charter obligation to grant free lamp renewals, and reluctance to disturb rate structures, are quickly dismissed as being inconsequential; charter provisions are easily changeable if the utilities want changes and, since rate schedules of companies usually merely include ½ cent per kilowatt hour to cover the cost of lamp renewals, the changes can be made without reconstructing the entire rate schedule.

The Prohibitionists' Way Out. The reasons given for demanding nothing short of discontinuance of appliance merchandising by public service companies include the following contentions.[23]

1. Appliance merchandising is a non-utility function and the fact that a "utility is a utility" is sufficient reason for leaving the merchandising business to independent dealers. No alternative is possible in view of the advantages which utility companies enjoy under publicly granted, special privileges.

2. Dealer-utility cooperation in any

[20] Dealers claim that some manufacturers of lamps discriminate against them by selling outright to utilities, while using the consignment form of contract for dealers and forcing them to maintain prices.

One dealer recently reported the following complaint: A request was made to the local electric utility company for four 1000-watt lamps to light a tennis court. The dealer received an invoice for $16.00, but upon hearing to whom the lamps were going, the utility cancelled the original invoice and sold the *customer* the four lamps for 40 cents, thus causing the dealer to lose the sale. The writer has received many letters from dealers and representatives of dealers organizations, containing statements of similar "unfair practices." One of the commonly cited practices is that of utility company salesmen wresting customer prospects from dealers after sales contacts had been established and even in some cases after sales had been closed.

[21] Surveys have been made to determine the extent to which sub-standard lamps are used. One of the most recent is that made by the Electrical Testing Laboratories of New York. The localities included in the survey comprise Milwaukee, Wisconsin, and 40 other neighboring communities served by the Milwaukee Electric Railway and Light Company which has the free-lamp-renewal practice. Nine-hundred and sixty-five lamps were purchased from 323 dealers; 498 were of three Mazda brands (Edison, National, or Westinghouse) and the other 467 were of more that 20 other domestic and foreign brands or bore no brand at all. Twenty-one different kinds of stores varying from malt and hop shops to crockery stores and sporting goods establishments handled lamps for resale. Nine per cent. of the Mazda lamps, 40% of the domestic non-Mazda, and 98% of the foreign lamps were labelled for voltages other than those maintained by the lighting company. The low percentage of Mazda lamps sold by dealers in Milwaukee might be explained by the inability of dealers to sell Mazda lamps in competition with the utility's free-lamp-renewal practice. Hence, appeals were made on the basis of other brands.

[22] "Central Station Lamp Policy," 26 *Electragist* 35 (February, 1927); for statements reflecting the attitude of independent electrical wholesalers see editorials in 12 *Jobbers Salesmen* 27 (November, 1931); 12 *Jobbers Salesmen* 26 (October, 1931); and 13 *Electrical Wholesaling* 14 (February, 1932). *Jobbers Salesmen* became *Electrical Wholesaling* on January 1, 1932.

[23] These reasons were given by manufacturers and wholesale and retail dealers in letters to, or personal interviews with, the writer. Similar arguments may be found in various sources already cited. In several instances persons otherwise violently opposed to utility merchandising generally favored it in small towns and rural sections where the volume of business and consumer acceptance are so low that dealers cannot profitably work the territory.

form which permits the utilities to remain in the merchandising business is not a solution because (1) it recognizes appliance merchandising as a proper utility activity—a condition which this group does not admit; (2) experience has demonstrated that dealers cannot rely upon the claims of willingness on the part of utility executives to adopt and practice cooperation. Arguments in this form have been advanced time and again by dealers and their representatives. At a Joint Industry Conference in 1928, representatives of the National Electric Light Association accepted a set of cooperative principles as a guide in the formulation of utility merchandising policies and practices. Similar principles were adopted by both the American Gas Association and the National Electric Light Association in 1931. Regardless of whether or not these two national associations adopted these principles in good faith, they have no means of enforcing their acceptance upon the member utility companies throughout the country. The fact that these principles have not been reflected universally in the merchandising practices of public service companies has caused many dealers to become very skeptical of dealer-utility cooperation as a solution of the merchandising difficulty and conclude that the only course is legislative prohibition if the companies refuse to retire voluntarily.[24]

3. "There is no such thing as regulating utilities. State regulation throughout the entire country is collapsing and, in fact, has only existed in theory." This argument advanced by the president of an appliance manufacturing company has wide acceptance among appliance dealers. Such an attitude toward regulation is accentuated with respect to appliance selling because state regulatory commissions have been loath to extend their jurisdiction over utility appliance selling and pricing policies in the absence of statutory law giving specific control over these activities. Practically the only jurisdiction exercised by commissions is that which is incidental to their control over utility accounting practices. Where segregation of merchandising and operating expenses and income is required, no plan of separating expenses and income common to both forms of activity and satisfactory to both utilities and dealers has been devised.[25]

Although they demand that utilities stop selling appliances and granting free lamp renewals, the vast majority of the prohibitionists concede that pioneering and promotional activities, necessary before new appliances will receive large popular demand, can be done better by public service companies than by other economic groups. They regard the cost of this form of activity as a proper and necessary item of expense to be covered

[24] The secretary of a certain electrical contractors' association gives the views of the members of that organization: "Cooperation involves compromise, and this issue is uncompromisable. In the manufacture and sale of appliances, etc., there is no reason for a monopoly which is always a precarious structure to erect because of its socially suggestive involvement for which we assume society is not yet prepared. The public's best protection toward securing well-constructed merchandise at a reasonable price in the present stage of social development is unquestionably through the maintenance of competitive enterprise" (Letter to writer). A member of a prominent plumbing company says, "Cooperation can only be had by each branch adhering closely to its own division and not attempting to usurp the privileges and duties of the other. The public interest is of the first importance and that fact alone precludes the possibility of any alliance or cooperative selling campaigns by dealer and utility" (Letter to writer). The editor of a leading retail trade paper told the writer that in many communities the only reason the utility companies cooperated with dealers at all was because of their desire to dominate the retail appliance market.

[25] Wisconsin has a statute requiring segregation of accounts for merchandising and operating activities. Many dealers are dissatisfied and want legislative prohibition substituted for the accounting law. Utility companies in Wisconsin are not opposed to the present arrangement. Many utility executives in other states regard the Wisconsin law as a burdensome imposition which is in nowise practicable or feasible.

by rates charged to customers.[26] However, this attitude is not universally held by dealers. In order to be consistent in the argument that consumers of gas and electricity should pay none of the costs connected with appliance merchandising, a small minority of the prohibitionists assert that utility companies should not engage in pioneering and promotional activities.[27] If price margins adequate to allow manufacturers, wholesalers, and retailers to perform this work do not exist, competitive conditions will establish the necessary margins after the utilities leave the field. The supposed advantage is that buyers of appliances will pay all costs incurred in manufacturing and distributing the particular appliances which they respectively use.

Claims of the "Reformers"

It has already been pointed out that the difference between the complaints of "reformers" and "prohibitionists" is largely one of degree. The former group agrees that the utilities are in a peculiarly favorable position to take unfair advantage of dealers and that they have done so in too many cases. But if the utilities will operate their merchandising on a self-supporting basis and offer active cooperation with dealer groups, these complainants declare they will be satisfied. Furthermore, they are quite ready to concede that public service companies are much better equipped financially and have much more favorable contacts with consumers and hence should bear the burden of pioneering and promotional expenses incident to the creation of demand for new appliances. Consequently, the correct procedure for utility companies is to charge the cost of this form of activity to operating accounts. But immediately after the pioneering and promotional stage is passed in connection with a given appliance, the price of the appliance should cover the original purchase price, all direct expenses of handling, selling, and such part of the overhead as an independent merchandising establishment would have to allocate to the appliance.[28]

Most of the national trade associations and trade publications representing the various economic groups which have an interest in the development of the appliance retail market are opposed to legislation prohibiting utility merchandising. They direct their efforts toward less drastic methods.

The spirit of individualism is so firmly established and experience with legislative nostrums has been so disappointing, that there is strong distrust of prohibitory legislation as a solution of the merchandising difficulties. Legislation

[26] Hearings before Sub-Committee of the House Committee on Public Utilities, *op. cit., supra*, n. 13, and hearings before Wis. R. R. Com., *op. cit., supra*, n. 13; report on hearings before Oregon Commission in 68 *Electrical West* 97 (February 1, 1932). A representative of a retail hardware association in a western state says, "We do not believe the utility companies should engage in merchandising at all and if they want to spend money lavishly so as to show a tremendous expense and not have to reduce their rates to the consumers, let them spend it in advertising and domestic science classes, educational features, show the public why the appliances that they are interested in are so necessary in the modern home equipment; and then urge the people to go to their nearest hardware store, furniture store, electric dealer or plumber and buy the merchandise" (Letter to writer).

[27] Opinions expressed directly to the writer in personal interviews.

[28] The utilities should "adopt merchandising practices which do not deny other branches of the electrical industry an open market for the sale of incandescent lamps, domestic appliances, ranges, radios, refrigerators and all other electrical appliances and equipment which is no longer in the pioneering stage." (Ed., 13 *Electrical Wholesaling* 14 (March, 1932)). "When consumer acceptance has been sufficiently developed so that it [an appliance] can be sold in satisfactory volume with that amount of sales effort which the independent dealer can afford to expend on a gross margin of between 35% and 40% of the retail selling price, then we believe an item is no longer in the pioneer class." (Ed., 13 *Electrical Wholesaling* 5 (March, 1932).

requiring an accounting segregation for merchandising and operating activities is not so unfavorably regarded by this group which merely wants assurance of freedom from abuses of utility merchandising.

The reformers also include those who feel that representatives of the National Electric Light Association and the American Gas Association are sincere in their endeavors to promote cooperation between their members and members of other trade organizations throughout the country; and by striving to build up a friendly spirit among the trade leaders in the national organization, feelings of mutual skepticism can be replaced by sentiments of friendly cooperation on the part of the various agencies in the appliance distribution system.[29] A rather general belief prevails among leaders of dealers' organizations that the higher executives of gas and electric companies have left too much leeway in the formulation of merchandising policies and practices to commercial or "new business" department managers who have been so eager to return favorable reports that they have neglected all regard for the dealers' interests. It is thought that when superior executives are acquainted with the actual situation they will refuse to countenance many prevailing practices.

IV. Methods and Results of the Opposition

In general, the form of the attack on utility merchandising suggests a revival of early American pamphleteering methods. Every writer and speaker on this subject seems to have his remarks reprinted and broadcast to swell the already large volume of pamphlet literature put out by the various organized groups.

A particularly prolific source of anti-utility literature is the Merchant and Evans Company. Despite the fact that manufacturers of appliances have not been the chief agitators against utility merchandising, this Company, manufacturer of refrigerators in Philadelphia, has taken up the cudgel against the utilities, after having failed in its efforts to sell the "M. & E." refrigerator to utility operating companies (particularly subsidiaries of Electric Bond and Share and United Gas Improvement Companies). Executives of the Company in 1928 addressed a complaint against public utility appliance merchandising to the Federal Trade Commission and from time to time sent much supporting evidence. They held that holding company control over widely scattered operating companies and the extent of utility-manufacturer affiliations gave appliance merchandising an interstate character which removed it from the realms of state jurisdiction. Finding the

[29] This attitude was reflected in an address by D. F. Kelly, President of the Fair (department store) Chicago, and Chairman of the Joint Merchandising Committee, (composed of representatives of National Electric Light Association, National Retail Dry Goods Association, National Retail Furniture Association, and the National Hardware Association): "The National Dry Goods Association is in no way connected with the efforts now being made in various parts of the country to have legislation enacted prohibiting the sale of merchandise by the utility companies. It is my opinion we should arrive at a very much more thorough understanding of this entire question including the present practices and what is of greatest interest to the public to be served and all parties engaged in this service, before we begin to discuss methods of effectively securing the proper rights to those who are entitled to receive and render the service. I say this in all sincerity for the reason that we have been assured time and again by representatives of utility operating companies in an ethical manner, that they have no desire to be in the merchandising field." (*Chicago Daily News*, April 23, 1931). The managing director, R. R. Rau, of the American Retail Furniture Association has stated that that organization takes no part in the organized opposition to utility merchandising (personal interview with writer); the National Association of Master Plumbers is unwilling that gas companies cease merchandising. (See article by the national president, P. W. Donoghue, 14 *American Gas Association Monthly* 111 (March, 1932).

Federal Trade Commission very apathetic, the Merchant and Evans Company appealed to the attorney general of Pennsylvania. The latter brought quo warranto proceedings against the Philadelphia Electric Company to determine the legality of appliance selling by a public utility where neither the state law nor the charter of the company gave such power. Final disposition of the case was made by the Pennsylvania Supreme Court in 1930,[30] in a decision upholding the power of the utility to merchandise. In 1929 and 1930, respectively, the Company published two pamphlets[31] which contain a very comprehensive set of charges not only against utility merchandising activities but also against illegal combinations through the holding company device and against the facilities offered by the National Electric Light Association. These pamphlets have been used widely in campaigns to secure legislation or other correctives of the alleged merchandising evil.

Activity against utility merchandising is carried on chiefly through the media of trade associations and trade papers. Many local associations of dealers, especially in the Middle West and Southwest, have worked aggressively to secure prohibitory legislation. These local organizations have membership in and give active support to other organizations formed to agitate for reform in utility company practices. Among the most active of these organizations are the Fair Merchandising Association of Missouri and the Illinois Fair Trade Commission, which publish monthly papers called *So the People May Know* and *Illinois Fair Trade Commission News*,[32] respectively. Another monthly publication which made its appearance about six months ago is the *Rate Payer*, the official organ of the American Bureau of Commerce, Cleveland, Ohio. The slogan of this publication is "Gas and Electricity in the Home should be as Cheap and Freely Used as Water." In addition to the support of proposed legislation to prohibit utility merchandising in the several states, these organizations aid in distributing their publications and other data in all states where anti-utility merchandising legislation is being considered. The distinct inclinations of these organizations toward public ownership of utility plants has caused them to lose the confidence and support of some dealers and dealer organizations. Although complaints are strongest during the acute business depression, this very condition has limited the financial support which dealers can give to these organizations.[33]

The "prohibitionists" have been successful during the past two years in securing anti-merchandising legislation in but two states—Oklahoma and Kansas. Bills were disapproved by vote of one or both houses of the legislatures of California, Illinois, Indiana, Missouri,

[30] 300 Pa. 577.

[31] *Op. cit., supra*, n. 10. The 1930 pamphlet calls upon members of Congress to pass resolutions directing the Federal Trade Commission to investigate public utility merchandising.

[32] The purpose of this privately incorporated body is set forth in an editorial in the first issue, January, 1932: "It is the sincere and earnest purpose of this association to properly inform each and every American citizen in this great State of Illinois with regard to the actual results of utilities merchandising. The utilities, merely privileged trusts, have a strong powerful hold and influence on present trade conditions. Why? Because they are well organized and operate under systematic 'rules and regulations.' "

[33] "The Fair Merchandising Association in the State of Missouri will have a skeleton organization of officers alone of approximately one thousand, representing many thousands of dealers. Affiliated with this group are also grocers, butchers, and organized labor. It is our opinion that the utilities will not oppose our bill [to prohibit utility merchandising] in the next legislature but if they do, I believe that the organization will then develop into a public ownership league." (Letter to writer from a member of the Association's executive committee, January 7, 1932).

Nevada, and Texas; and bills were killed either by failure to report them out of committee or by adjournment in Alabama, Nebraska, Pennsylvania, Tennessee, Wisconsin, Mississippi, and Massachusetts.[34] Other recent results more or less indirectly influenced by the opposition to utility merchandising are: the Wisconsin law requiring segregation of merchandising and operating accounts and disallowance of profits and losses on merchandising from consideration in the determination of rates;[35] the report of South Carolina Power Rate Investigating Committee recommending that the state public service law be amended to require separate accounts for electric utility appliance merchandising and apportionment of part of the indirect costs to merchandising;[36] the authorization by the New York Public Service Commission of the "preparation of an accounting system and form of report which will show the full and complete cost of public service company merchandising operations;"[37] the action of the attorney general of Texas in bringing a quo warranto proceeding against the San Antonio Light and Power Company which resulted in the lower state court declaring that the utility company had no power to sell appliances;[38] and the hearings before the Oregon Public Service Commissioner on complaint of the Oregon Merchants Utility Bureau and a number of retailers against utility merchandising practices.[39]

Efforts of those who do not oppose utility merchandising per se, but merely want the public service companies to cease certain alleged "unfair" practices and to cooperate more closely with other marketing agents have not been unrewarded. Such practices as the granting of premiums with sales of appliances, and excessive trade-in allowances have been abandoned by many utility companies. In proportion as higher executives have more and more familiarized themselves with the aggressiveness of over-zealous commercial managers and appliance salesmen, they have removed some of these causes for complaint. Sales cooperation between dealers and gas and electric companies has been practiced for years in some communities and announcement of "merchandising principles" by the American Gas Association and the National Electric Light Association in 1931, in alliance with national dealer organizations, has given an impetus to the cooperative movement.[40] Almost daily new cooperative plans are announced in localities throughout the country. Cooperation has tremendous potentialities which can be realized to the mutual advantage of all groups interested in greater development of the market for gas and electric appliances.

By no means is it the intention of this discussion to imply that opposition to

[34] Greenwood, C. E., "Why Kill the Goose," 19 *N. E. L. A. Bulletin* 142-44 (March, 1932).

[35] Wisconsin Statutes, c. 196.59 (1929).

[36] *Report on the Electric Situation in South Carolina* (1932), pp. 44-45.

[37] Complaint of *Luckey, Platt and Company of Poughkeepsie v. Central Hudson Gas and Electric Corporation*, Case 5862, decided February 2, 1932.

[38] 13 *Electrical Wholesaling* 45, (ed.) (February, 1932). The case is not yet officially reported.

[39] 47 *Electrical Merchandising* 69 (March, 1932).

[40] Some cities in which such cooperative action is practiced are: Milwaukee; New Orleans; Brooklyn; Buffalo; Cleveland; Springfield, Pittsfield, and Greenfield, Mass.; San Francisco; Poughkeepsie, New York and neighboring communities; Long Beach, California, Los Angeles; Philadelphia, Reading, and Pittsburgh, Pennsylvania; St. Louis; and Columbus, Ohio.

The writer wishes to correct an error which crept into the article, "Regulation of Public Utility Appliance Merchandising" in the February issue of the *Journal*. In note 6, p. 75, "The Southern California Edison Company beginning on December 31, 1931, withdrew from the merchandising of ranges in Long Beach, California for 15 years" should read: "The Southern California Edison Company beginning on September 18, 1930, withdrew from the merchandising of ranges in Long Beach, California for 15 months."

utility merchandising has been the sole cause for the development of dealer-utility cooperation and the abandonment of certain utility merchandising practices. Many utility executives and members of national utility organizations have recognized for a long time that improper practices prevailed and have worked earnestly to correct the abuses. They realize that the development of greater use for gas and electricity is dependent upon greater volume of appliance sales which cannot be achieved by public service company merchandising departments working independently and in utter disregard of other dealer outlets.

V. Conclusions

As stated at the outset, this article purports to be primarily a descriptive account of the opposition to public utility appliance merchandising. A survey of the opposition as outlined here suggests that the case against the utilities has certain limitations.

1. The ultimate determination of what is or is not a proper utility activity must be based upon social considerations of a broader nature than the arguments advanced by those who would prohibit utility merchandising. Protestations and argumentations of conflicting profit-seeking interests will contribute to a solution only in so far as they disclose facts which will help to answer the question: What agency or agencies can perform the appliance selling function most efficiently and at least cost from the standpoint of users of appliances and consumers of gas and electric service? At the present time there is such a deplorable paucity of facts that no answer can yet be given. It is hoped that several studies now being carried on will produce suggestions out of which a solution may be developed.

2. Facing severe losses or total failure in the current depression, many dealers perhaps have exaggerated the extent to which their ills are attributable to public utility merchandising practices. It is no secret that the growth in types and number of dealer appliance outlets foredestined unstable market conditions even before the economic cataclysm of the past two years enveloped the business structure of the country. If public service companies were out of the merchandising picture, vigorous competition among dealers would eliminate the relatively incompetent sellers. Measured from the standpoint of operating efficiency, dealers are found all along the line from the most competent to the utterly incapable, and from the financially sound to the shoe-string variety. Viewing the problem broadly, preservation of inefficient selling agencies should not be a cause for changing the marketing system.

3. The crux of the indictment against utility merchandising practices is the charge that public service companies incur heavy merchandising expenses which are not balanced by revenues from appliance sales. The "deficits" thus produced are sometimes charged to operating accounts and recovered through rates paid for gas and electric service. This complaint must be given more thorough analysis than it has received in the past. Such analysis ought to begin with a recognition of the character of the commercial expenses of a utility company. "Merchandising" expenses should be distinguished from "new business" expenses. The former include those costs incurred in connection with appliance selling per se. The latter comprise costs of securing greater consumption of gas and electricity, without reference to appliances through which the use of service is possible. Admittedly grave difficulties are encountered in attempting

to distinguish between these two forms of expenses, particularly where certain costs are common to both forms of activity. But adequate proof has not been offered that separate accounting is impossible. Some of the utility's advertising expense is clearly of the institutional type and properly chargeable to new business expense. Other advertising expense is incurred in direct furtherance of appliance sales, and—unless the appliances are still in the pioneer class—should be reflected in merchandising expenses. Yet some advertising is intended for both purposes—to sell specific appliances and to develop greater acceptance of gas or electric service—and costs should be divided between new business and merchandising accounts. That some of this expense allocation is capricious and arbitrary is not sufficient reason for refusing to consider segregation of accounts as a partial solution of the merchandising difficulties. Accounting has not been developed to a state of perfection in any industry. There is and most probably will continue to be much of the arbitrary in accounting procedure whereever the problems of overhead cost distribution are found.

4. Finally, this outline of the opposition's case brings to light a neglect to answer the claims of the utilities as to why they feel justified in continuing in the merchandising field. Can those who would have the utilities cease appliance merchandising answer the latter's claims to furnishing superior appliances and services, as well as the necessary facilities for financing customer appliance purchases? These arguments suggest an analysis of the utilities' claims and, to the extent they may contain elements of truth, they would indicate that the opposition must augment its efforts by more constructive and concrete evidence; it cannot fare successfully on demagoguery or a mere decrying of utility practices. A valid attack requires a solid foundation and a purpose broader than the self-interest of those engaged in it.

A Summary of Natural Gas Utilization and Costs

By J. C. DOCKERAY

Recent Developments

TODAY it is not uncommon for a newspaper to carry an account concerning some new use for natural gas or the latest annual consumption figures showing a new gain. The public is accustomed to think of the natural gas industry as a large and permanent industry, though this conception is usually a rather hazy one. There are many angles to the natural gas industry, such as pipe line developments, the available supply and its probable life, the corporate organization of the industry, and the extent to which natural gas is used and the costs of those uses. Any of these might be considered in presenting a view of the present status of the natural gas industry. This paper, however, is limited to a brief summary of the principal ways in which natural gas is utilized and the prices paid for natural gas for various purposes.

Only a decade ago (in 1921) we find the United States Geological Survey making the following statement in commenting on the large decline in consumption of natural gas:

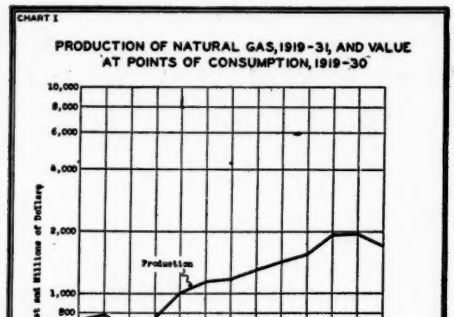
"A single year's decline does not warrant the assumption that the industry has already passed its peak of production in both quantity and value, but the data at hand in regard to the gas still available underground and its relation to the municipal centers or industrial markets make it probable that the annual output will never be very much more than it was during the period 1916-20. It is likely, however, that the average value of the gas will increase more rapidly than the sales will decrease, so that the total value will more than hold its own."[1]

In 1921, production had declined to 662 billion cubic feet, a loss of 17% from 1920, while the value of gas consumed had declined to $175,000,000, a decrease of 11%. In view of the business depression of that year, which according to the *Annalist* Index of Business Activity reached a low of −18%, this decline was not excessive. In addition, considerable development in the Louisiana fields and some development in Pennsylvania, California, Oklahoma, Texas, and Wyoming took place during 1919-1921.[2] What the Geological Survey did not foresee was the true extent of the new fields and the later development in pipe line systems which now supply large industrial and domestic markets far removed from the supply. Today we find that production has increased to approximately three times the 1921 figure, while value has increased in a slightly smaller ratio because of the decline in the average value at points of consumption from 26.4 cents in 1921 to 21.4 cents per MCF (thousand cubic feet) in 1930.[3] Chart I and Table I show the comparative growths in production and value at

[1] McBride, R. S., and Sievers, E. G., "Natural Gas in 1919-21," in United States Geological Survey, *Mineral Resources of the United States in 1919-21*, Part II, p. 340.

[2] *Ibid.*, p. 341.

[3] "Consumption of Natural Gas Shows Slight Increase in 1930," 12 *Natural Gas* 16 (November, 1931). This article is based on an advance release by G. R. Hopkins of the United States Bureau of Mines. It should be mentioned in this connection that 1930 is the last year for which complete official figures are available. Data for 1931 will probably not appear until early in 1933.



points of consumption during 1919-30. The slower increase in value has been the result principally of the increasing importance of industrial consumption which has always received rates somewhat lower than those for domestic uses. Chart II, based on Table II, shows the comparative average values for industrial and domestic uses and the two combined. The wide difference between these average values is obvious.

All government reports on the natural gas industry give the figures for domestic and industrial consumption with the latter sub-classified according to use as carbon black,[4] field,[5] petroleum refining,[6] electric public utility power plants,[7] and all other uses.[8] Total value figures are classified as domestic and industrial, and the combined average. Although these data limit the degree to which an analysis of the industry may be carried, they are adequate in furnishing a

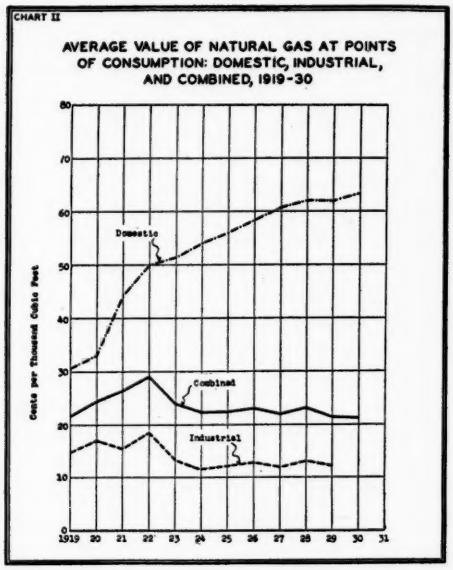


TABLE I. PRODUCTION OF NATURAL GAS, 1919–31, AND VALUE AT POINTS OF CONSUMPTION, 1919–30.*

Year	Production (Billions of CF)	Value (Millions of Dollars)
1919	745.9	160.9
1920	798.2	196.2
1921	662.1	174.6
1922	762.5	221.5
1923	1,007.0	240.0
1924	1,141.5	253.8
1925	1,188.4	264.2
1926	1,312.9	300.1
1927	1,445.2	317.8
1928	1,568.0	413.2
1929	1,917.5	413.2
1930	1,943.0	415.9
1931	1,700.0	.....

*Sources: 1919–22, United States Bureau of Mines, *Mineral Resources of the United States in 1923*, Pt. II, p. 352; 1923-24, United States Bureau of Mines, *Mineral Resources of the United States in 1924*, Pt. II, p. 323; 1925-29, United States Bureau of Mines, *Mineral Resources of the United States in 1929*, Pt. II, p. 320; 1930, 12 *Natural Gas* 18 (November, 1931); 1931 estimated in Struth, *infra* n. 24 at p. 3.

[4] "Carbon black" refers to the natural gas consumed in the production of carbon black.

[5] "Field" uses cover the wide use made of natural gas in the oil- and gas-producing fields as a fuel under steam boilers or to operate internal combustion engines.

[6] "Petroleum refining" involves the use of natural gas to obtain the very high temperatures needed in modern "cracking" processes.

[7] "Electric public utility power plants" use considerable quantities of natural gas as boiler fuel in generating power.

[8] The "all-other" classification covers the great range of general industrial uses, such as stereotyping, baking, heat-treating, and the like.

TABLE II. AVERAGE VALUE IN CENTS PER M. C. F. OF NATURAL GAS AT POINTS OF CONSUMPTION: DOMESTIC, INDUSTRIAL, AND COMBINED, 1919–1930.*

Year	Domestic	Industrial	Combined
1919.....	34.6	14.8	21.6
1920.....	38.2	17.0	24.6
1921.....	44.4	15.5	26.4
1922.....	49.9	18.6	29.1
1923.....	51.4	13.4	23.8
1924.....	54.0	11.6	22.2
1925.....	56.0	12.3	22.3
1926.....	58.4	12.8	22.9
1927.....	60.8	12.0	22.0
1928.....	62.0	13.2	23.2
1929.....	62.0	12.2	21.5
1930.....	63.5	.....	21.4

*Sources: 1919-22, United States Bureau of Mines, *Mineral Resources of the United States in 1923*, Pt. II, p. 352; 1923-24, United States Bureau of Mines, *Mineral Resources of the United States in 1924*, Pt. II, p. 323; 1925-29, United States Bureau of Mines, *Mineral Resources of the United States in 1929*, Pt. II, p. 320; 1930, 12 *Natural Gas* 18 (November, 1931).

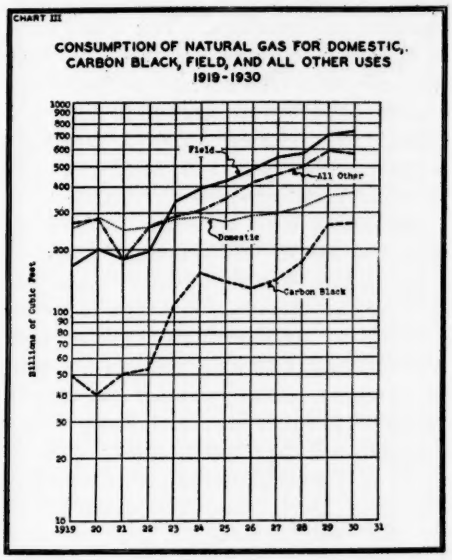
satisfactory basis for a general survey of the gas industry.

Chart III and Table III show the growth in natural gas consumption in domestic use and the industrial classifications for the years 1919-1930. During this period the industrial classes of consumption increased in a fairly comparable manner, while the domestic consumption increased very slowly until the last two years included in the chart. The factors involved in these growths in the use of natural gas will be discussed in the succeeding sections of this paper.

TABLE III. CONSUMPTION OF NATURAL GAS FOR DOMESTIC, CARBON BLACK, FIELD, AND ALL OTHER USES, 1919–1930.*
(In Billions of Cubic Feet)

Year	Domestic	Carbon Black	Field	All Other
1919.....	255.7	49.9	169.8	270.5
1920.....	286.0	40.6	202.1	269.5
1921.....	248.3	50.6	182.3	180.8
1922.....	254.4	53.6	197.9	256.7
1923.....	277.1	109.1	343.1	277.7
1924.....	285.2	156.5	393.4	306.4
1925.....	272.1	140.4	423.5	352.4
1926.....	289.2	130.3	478.2	415.2
1927.....	296.0	144.1	549.5	455.7
1928.....	320.9	175.1	573.7	498.3
1929.....	359.9	261.1	705.1	591.4
1930.....	376.4	266.6	723.2	575.4

*Sources: 1919-22, United States Bureau of Mines, *Mineral Resources of the United States in 1923*, Pt. II, p. 352; 1923-24, United States Bureau of Mines, *Mineral Resources of the United States in 1924*, Pt. II, p. 323; 1925-29, United States Bureau of Mines, *Mineral Resources of the United States in 1929*, Pt. II, p. 320; 1930, 12 *Natural Gas* 18 (November, 1931).



Domestic Consumption

Manufactured gas was used in this country some years before the discovery and use of natural gas. The manufactured product had at first been used entirely for street lighting, and later for house lighting, and, as a matter of course, natural gas also was used first for these purposes. Little or no use was made of natural gas for heating and cooking; the companies seemed satisfied with the lighting business. With the development of electricity, gas was soon forced to give up much of the lighting business to its cheaper and more efficient competitor. The gas companies then developed the domestic cooking market and again rested on their laurels. During the present period of development, which began about 1919, the companies have been actively developing the domestic market for uses

other than cooking which is a slowly dwindling source of revenue. Much of the sales activity in the domestic market has been directed along the lines of house heating and of gas-operated mechanical refrigerators. The companies have been moderately successful in their sales efforts, a factor which probably accounts for part of the growth in domestic consumption during 1928-30, although a greater part was attributable to extensions made into new territories.

Beginning with 1919 the number of domestic consumers increased steadily from 2,501,000 in that year to 5,448,000 in 1930, an increase of 118%. This increase was attributable chiefly to pipe line extensions making possible the substitution of natural gas for the manufactured product in many large cities, coupled with the more intensive development of the market than was formerly the case. During the same period (1919-30) the volume of natural gas consumed by domestic users increased from 256 billion cubic feet to 376 billion cubic feet, a growth of only 47%, and the ratio of domestic consumption to total consumption decreased from 34.3% to 20%.[9] These comparisons show the absolute importance of domestic consumption to the natural gas industry. This importance is quite large because the volume of consumption is fairly large, at generally satisfactory rates (which yield over one half of the industry's gross revenue), and is not subject to fluctuations from economic causes to the same extent as the industrial classes of consumption. On the other hand, domestic consumption is of decreasing importance in total sales volume and it is to the industrial fields that the gas utilities are looking for their greatest and most profitable growth.

[9] 1919 data from McBride and Sievers, *op. cit.*, p. 339; 1930 figures from 12 *Natural Gas* 16 (November, 1931).

Gas companies suffered as did the other utilities in their inability to secure rate increases in the period of rapidly rising prices during and immediately after the World War. In those cities where new service was installed the companies were able to secure satisfactory initial rates, but in cities where service was already being given the rates did not begin to rise materially until after 1919. During the period from 1919-1927 rates rose slowly in the cities reported by the Bureau of Labor Statistics.[10] Since that time decreases have been minor in character and some rate cases are now in progress with the companies asking for rate increases. Table IV shows average rates in certain representative cities in the United States.

TABLE IV. NET RETAIL PRICES CHARGED IN REPRESENTATIVE CITIES PER M. C. F. OF NATURAL GAS ON BASIS OF FAMILY CONSUMPTION OF 5000 CUBIC FEET PER MONTH.*

Year	1919	1921	1923	1925	1927	1929	1930
Atlanta	....	....	....	....	....	....	1.17
Cincinnati	.35	.35	.50	.75	.75	.75	.75
Cleveland	.35	.35	.55	.55	.60	.60	.60
Columbus, O.	.30	.30	.45	.55	.48	.48	.48
Dallas	.45	.68	.68	.74	.79	.79	.79
Denver	....	....	....	....	....	.99	.99
Houston	....	....	....	....	.75	.75	.75
Kansas City	.80	.90	.95	.95	.95	.95	.95
Little Rock	.45	.45	.45	.65	.65	.65	.65
Los Angeles	....	....	....	....	.91	.84	.84
Louisville	.45	.45	.45	.45	.45	.45	.45
Memphis	....	....	....	....	....	.97	.95
New Orleans	....	....	....	....	....	.95	.95
Pittsburgh	.35	.45	.50	.60	.60	.60	.60

*Bureau of Labor Statistics, *Monthly Review, 1919-22*, August, 1926, p. 178; *1923-29*, February, 1930, p. 233; *1930*, February, 1931, p. 202. 1919 is as of April 15. Other years are as of June 15.

Five MCF approximates the average monthly consumption of domestic consumers. In 1930 the average domestic consumer used 69.1 MCF or an average of 5.7 MCF per month. (See 12 *Natural Gas* 16 (November, 1931).)

It is interesting to note that these average rates appear to have but little relation to the distance from the sources of supply. Los Angeles, lying only a little more than 100 miles from the large Buttonwillow and Kettleman Hill fields,

[10] Bureau of Labor Statistics, *Monthly Review*, August, 1926, p. 178, and February, 1930, p. 233.

pays an average rate of 84 cents per MCF. Cincinnati, Ohio and Louisville, Kentucky, lying approximately the same distance from a common source of supply, the West Virginia-Kentucky fields, pay 75 cents and 45 cents respectively. On the other hand, Columbus, Ohio, also lies about 200 miles from its principal sources of natural gas and pays 48 cents per MCF. All of these cities receive natural gas of 1,000-1,500 B. T. U. content, so the rates do not appear to vary in proportion to the quality of gas delivered. The fact that domestic rates do not vary directly with distance from the source of supply or the quality of the gas may be explained in two ways. First, without any information to the contrary it seems fair to infer that domestic rates are determined in large measure by the bargaining power or influence of the various companies over the commissions or municipal councils involved. Second, there is the fact that, to the consumer who has been accustomed to paying a dollar per MCF for 550 B. T. U. manufactured gas, the introduction of 1,000 B. T. U. natural gas at approximately the same price is a decided improvement in cost, even though the rate charged may be somewhat higher than those charged in other cities under similar operating conditions.

Industrial Uses

"All Other" or Miscellaneous Industrial Uses. In the field of miscellaneous industrial uses, natural gas will probably find its greatest use. Although this class of consumption has been small, amounting to only 23% of total consumption in 1930,[11] the technical developments in the field of automatically controlled industrial processes, coupled with lower rates and greater availability of this fuel, offer possibilities of a huge market. Natural gas is in many respects the ideal industrial fuel for use in heat processes where absolute constancy is essential to the quality of the product. It does not require storage on the part of the consumer, nor does the consumer have any capital tied up in reserve stocks as is the case with fuel oil and coal, and no labor cost is involved after the original installation. Some industrial plants have installed butane storage equipment for stand-by purposes,[12] but this is not general because interruptions in the supply are not likely at the usual low delivery pressures, and the extensive emergency provisions usually made by the supplying company render this still more unlikely.

Natural gas is considered the ideal fuel for use in glass manufacturing, ceramics, baking, smelting and refining of metals, automotive trades, metal working, dry kiln operations, cement, lime, and petroleum refining. In all these processes great possibilities as well as a real need for controlled temperatures may be noted. In addition to these technical processes other conditions in particular industrial organizations may at times make the use of the higher-cost fuel advisable.

It is difficult to give a fair picture of the rates charged for industrial uses because of the nature of the classification, the wide variations in use, and the dearth of published rates. According to the United States Bureau of Mines, the average rate during 1929 was 19.7 cents per MCF. This figure is misleading because it includes many classes of general industrial consumption, gas used for electric power generation by public utilities, and gas used by petroleum re-

[11] 12 *Natural Gas* 16 (November, 1931).

[12] Hopkins, G. R., and Seeley, E. M., "Natural Gasoline in 1929," *Mineral Resources of the United States in 1929*, Pt. II, p. 341.

fineries.[13] The last two classes receive very low rates. This figure of 19.7 cents is a composite of 24 averages representing 25 states and Alaska. These are weighted averages obtained by dividing the total revenue derived from sales for the above mentioned industrial purposes in the various states by the total volume of sales in those states. As a result they reflect the effect of distance of the market from source of supply, the particular sales conditions existing in the several states, and the predominance of one or another class of use in each particular state. The distribution of these averages is as follows:[14]

Average in cents*	Cases
0– 9.9	2
10–19.9	11
20–29.9	6
30–39.9	2
40–49.9	1
50–59.9	2

*The above averages range from 6.5 cents to 59.8 cents.

The price detail underlying the state averages is not available but some analysis can be made through a consideration of the consumption figures. Wyoming has the lowest average rate, 6.5 cents. A study of the data shows a consumption of 14,567,000 MCF in petroleum refinery and electric power production uses, or approximately four times the amount consumed for other industrial purposes. Moreover, the latter figure includes the operations of two carbon black producers in the State (and in 1929 the average cost of gas used for this purpose was 2.0 cents per MCF). New York State reported the highest average rate, 59.9 cents. In this State practically the entire industrial consumption may be classed as "other industrial," as distinguished from petroleum refinery and electric power production uses. Indiana reported its entire industrial consumption as "other industrial" with an average value of 53.5 cents. Louisiana's large industrial consumption with an average value of only 12.2 cents per MCF was divided between 46% for "other industrial" uses and 54% for petroleum refinery and electric power generation uses. Texas divided its still larger consumption between 55% for "other industrial" and 45% for petroleum refinery and electric power generation and had an average rate of 16.3 cents per MCF.[15]

It is difficult to determine exactly what factors affect the rates which make up the average costs of natural gas for industrial purposes. Distance is undoubtedly an important factor, since transportation costs are considerable for the longer distances. New York and Indiana, the states with the highest average rates, are somewhat farther from the source of supply than are Louisiana and Texas. But the bulk of the industrial consumption in Louisiana and Texas can hardly be much farther from the producing fields than it is in Wyoming, while the volume over which to distribute pipe line costs is much larger. From a study of these and other states it seems probable that the cost of natural gas for industrial purposes depends upon the distance of the market from the source, the market conditions of supply and demand, and the characteristics of the particular industry using the gas. It is a fair conclusion that the average rate for industrial use is 19.7 cents because of the very low rates charged for a large part of the consumption and not because

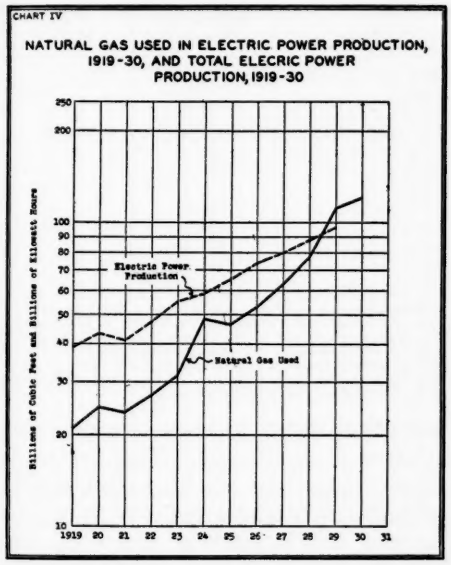
[13] A small amount of gas used in the manufacture of carbon black is included in this average to avoid giving information on the operations of individual plants.

[14] Hopkins, G. R., and Backus, H., "Natural Gas in 1929," in *Mineral Resources of the United States in 1929*, Pt. II, p. 332.

[15] Hopkins and Backus, *op. cit.*, p. 332.

comparatively high rates are not charged for many classes of industrial use.

Electric Power Production. Data are available from 1919 for the amount of natural gas consumed in the generation of electric power. During the 11-year period ended in 1929, the total amount of electrical energy generated increased approximately 250%, while the amount of natural gas consumed in electric power generation increased about 530%.[16]



This is indicative of a growth which, in view of the further increase of 6.7% in 1930,[17] should continue for some time but probably will have very definite limitations. These limitations will probably be those enforced in part by competition from hydro- or coal-generated power which under certain conditions may be produced for a lower cost per kilowatt hour and in part by the increasing and more profitable demand for natural gas in industry. That this is already the case is shown by the fact that very frequently the steam generating plants are designed to use both gas and coal so that the company can use gas in the summer and coal in the winter, thus equalizing the load carried by its gas business.[18] The relative rates of growth in power produced and gas consumed in power production are shown graphically on Chart IV, which is based on Table V.

TABLE V. NATURAL GAS USED IN ELECTRIC POWER PRODUCTION, 1919–30, AND TOTAL ELECTRIC POWER PRODUCTION, 1919–29.*

Year	Natural Gas Used (Billions of Cu. Ft.)	Electric Power Production (Billions of Kw. Hrs.)
1919.....	21.4	38.9
1920.....	24.7	43.4
1921.....	23.7	41.0
1922.....	27.2	47.7
1923.....	31.4	55.7
1924.....	48.4	59.0
1925.....	46.5	65.9
1926.....	53.2	73.8
1927.....	63.9	80.2
1928.....	77.3	87.9
1929.....	113.7	97.3
1930.....	120.2	.....

*Sources: Ostrolenk, B., "Natural Gas in Increased Demand as Industrial Fuel," 35 *Annalist* 852 (April 18, 1930); 1930 data from *Standard Trade and Securities Service*, March 18, 1931, Section 2.

The exact value of natural gas used in power generation is not known. Since gas is used in this manner chiefly in the large gas-producing states, such as Louisiana, Texas, and California, and there principally by power companies supplied by corporate affiliates, the value is probably quite low. Especially does this seem to be the case when it is considered that coal prices have been at a very low level in the past few years during which the greatest growth of this use for natural gas has taken place.

Carbon Black. "Carbon black is a jet-black, fluffy, extremely finely divided

[16] Ostrolenk, B., "Natural Gas in Increased Demand As Industrial Fuel," 35 *Annalist* 852 (April 18, 1930).
[17] 12 *Natural Gas* 18 (November, 1931).
[18] Robinson, M., "The New Age of Gas Fuel," 46 *Magazine of Wall Street* 376-8 (June 28, 1930). It should be mentioned in this connection that the largest steam generating plant in the South with a capacity of 85,000 kw. hrs. uses 30,000,000 CF of natural gas per day.

material made by burning natural gas in a deficiency of oxygen."[19] Carbon black is widely used as a coloring agent wherever a dense dead black is required. Its finely divided composition makes it mix readily with a wide variety of carrying agents. Since 1860 carbon black has replaced lampblack except in a few special types of paints and has acquired a very important use in the manufacture of inks. One pound of carbon black mixed with eight pounds of oil will give enough ink to cover nearly an acre of surface.[20] No competitor can approach this covering power. During 1930, ink producers used 19,220,000 pounds of carbon black, or 11% of the total domestic consumption.

By far the most important market for carbon black is the rubber industry. It was first used in 1915 as a coloring agent but it was soon discovered to have, in addition, very definite properties for increasing the wearing qualities of rubber. Since that time the use has grown rapidly so that by 1930, 77% of total domestic deliveries, or about 128,500,000 pounds, were made to the rubber industry.

"As recently as ten years ago most automobile tires were white or red and were good for only about 5,000 miles. Now tires are practically all black and are good for 10,000 to 15,000 miles, results due to the use of carbon black."[21]

The manufacture of certain types of paints and lacquers consumed over 12,000,000 pounds or 7% of domestic carbon black sales in 1930. Miscellaneous purposes, the manufacture of stove and shoe polishes, phonograph records, carbon paper, etc., accounted for the remaining 5% of domestic consumption.

During the period 1919-30, the total volume of carbon black produced increased from about 52,000,000 pounds to 380,000,000 pounds and the value from $3,800,000 to $14,850,000. These figures represent a decline in average value from 7.3 cents per pound in 1919 to 3.9 cents in 1930. This decline in value is shown on Table VI and Chart V by the somewhat slower increase in total value relative to production. This decline is caused in part by the increasing supply of stocks on hand carried over from year to year and in part by increased efficiency of production in a competitive market. The average yield increased from 1.0 pound per MCF of natural gas in 1919 to 1.43 pounds per MCF in 1930. This compares with a theoretical content of 33.44 pounds of carbon per MCF of natural gas at atmospheric pressure and 32° F. While recoveries as high as 10 pounds per MCF are obtained, the desired physical properties have been found to vary inversely with the amount of recovery; in general, the recovery in the present state of the art should not be permitted to exceed two pounds per

TABLE VI. PRODUCTION AND TOTAL VALUE OF CARBON BLACK, 1919–30.*
(All Data in Millions)

Year	Production (Pounds)	Value (Dollars)
1919	52.1	3.8
1920	51.3	4.0
1921	59.8	5.5
1922	67.8	5.8
1923	138.3	11.7
1924	186.9	11.6
1925	177.4	9.6
1926	180.6	9.9
1927	198.4	11.0
1928	248.8	13.8
1929	366.4	18.7
1930	379.9	14.8

*Sources: 1919-22, United States Bureau of Mines, *Mineral Resources in the United States in 1922*, Pt. II, p. 352; 1923-24, United States Bureau of Mines, *Mineral Resources of the United States in 1924*, Pt. II, p. 323; 1925-29, United States Bureau of Mines, *Mineral Resources of the United States in 1929*, Pt. II, p. 320; 1930, United States Bureau of Mines, *Mineral Resources of the United States in 1930*, Pt. II, p. 49.

[19] Hopkins, G. R. and Backus, H., "Carbon Black in 1929," in United States Bureau of Mines, *Mineral Resources of the United States in 1929*, Pt. II, p. 51.

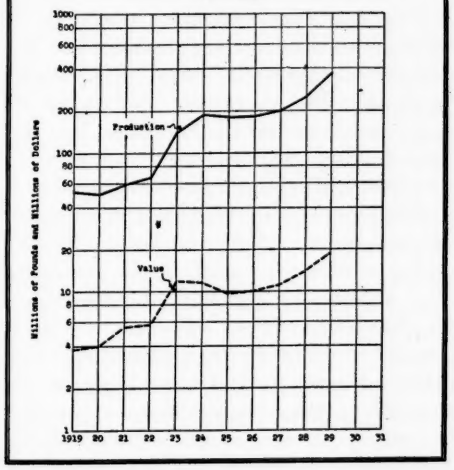
[20] *Ibid.*, p. 53.

[21] *Ibid.*, p. 53.

MCF for the better grades of product. In 1930, 266 billion cubic feet of natural gas were used in the production of carbon black at an average price of 2.25 cents per MCF.[22] Carbon black manufacturing requires a supply of cheap gas and has been moving westward with the new gas discoveries. This movement which has gone from Kentucky to Louisiana to Texas continued in 1930 when Texas consumed 66% of the gas used in the manufacture of carbon black as compared with 58% in 1929 and 36% in 1928.

CHART V

PRODUCTION AND TOTAL VALUE OF CARBON BLACK
1919-1929



Natural Gasoline. When natural gas comes from the wells it contains varying amounts of gasoline in a vaporous state. This content varies roughly from one-half to three gallons of gasoline per MCF of natural gas. A number of processes have been developed which make possible the recovery of gasoline content at a profit without in any way reducing the value of the gas. The natural gasoline is a very volatile gasoline and is widely used for blending with the gasoline produced by distillation from crude petroleum. Two of the by-products derived in the process, butane and propane, are becoming increasingly important.[23]

During 1930, natural gasoline plants treated 2,089 billion cubic feet of natural gas and recovered 2,210 million gallons of natural gasoline. This represents an increase of 6.6% in the volume of gas treated and a decrease of 1% in the total gasoline yield as compared with 1929.[24] This continued the trend of treating larger volumes of gas and obtaining smaller yields which began in 1929 when 33% more gas was treated with a yield only 23% greater than in 1928. The decrease in average yield has been attributable first to the installation of some very large plants which can handle large volumes of gas but cannot recover the entire gasoline content; and, second, to the demand of the refineries for a "stabilized" or standardized grade of natural gasoline for blending purposes. This has forced natural gasoline producers to reduce their recovery so as to omit the more volatile portions of the gasoline vapor as found in natural gas.[25]

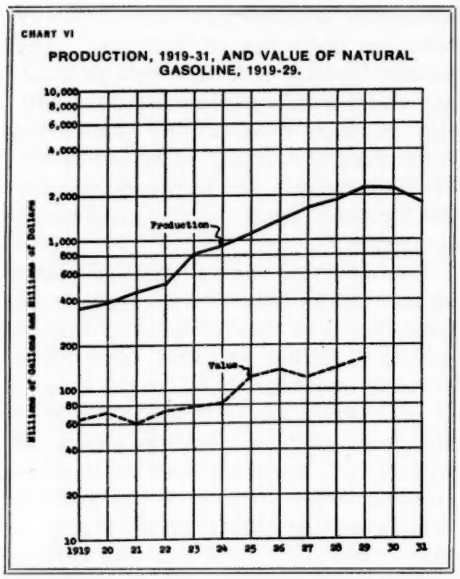
While the volume of natural gasoline production has increased steadily, the value has not kept pace (Chart VI and Table VII). The average value declined from 18.3 cents in 1919 to 7.1 cents in 1929. This decline took place in the face of increased demand for "stabilized" natural gasoline for blending purposes

[22] Hopkins and Backus, "Carbon Black in 1930," *op. cit.*, Pt. II, p. 47.

[23] While large amounts of butane and propane are also derived from the "cracking" processes of petroleum refining, the natural gasoline industry with its existing equipment can produce large (and at present adequate) quantities of liquefied gas at a lower cost than the refineries and constitutes the chief source of supply at the present time. (Setrum, *op. cit.*).

[24] Struth, H. J., "Sharp Decline in Gas Production Indicated by Natural Gas Facts," 13 *Natural Gas* 43 (January, 1932).

[25] Hopkins and Seeley, "Natural Gasoline in 1929," *op. cit.*, Pt. II, pp. 302-3.



in the manufacture of motor fuels,[26] which has increased considerably in spite of the remarkable developments in refinery processes during the last 10 years. The most probable explanation is that with the large and rapid increase in the consumption of natural gas has gone a condition of overproduction of natural gasoline which has created what is essentially a buyer's market for natural gasoline.

TABLE VII. PRODUCTION, 1919–31, AND VALUE OF NATURAL GASOLINE, 1919–29.*
(All Data in Millions)

Years	Production (Gallons)	Value (Dollars)
1919	351.5	64.2
1920	384.7	71.8
1921	449.9	61.8
1922	505.8	72.7
1923	816.2	77.3
1924	933.9	82.2
1925	1,127.5	120.4
1926	1,363.1	136.4
1927	1,641.1	118.7
1928	1,814.0	138.9
1929	2,233.7	158.4
1930	2,210.0	.....
1931	1,800.0 (est.)	.....

*Sources: 1919-22, United States Bureau of Mines, *Mineral Resources of the United States in 1923*, Pt. II, p. 352; 1923-24, United States Bureau of Mines, *Mineral Resources of the United States in 1924*, Pt. II, p. 323; 1925-29, United States Bureau of Mines, *Mineral Resources of the United States in 1929*, Pt. II, p. 320; 1930-31, Struth, *op. cit.*, p. 3.

Butane and Propane. The desire of petroleum refineries to secure better and more stable grades of natural gasoline resulted in the removal of the more volatile portions of natural gasoline which occur between the so-called permanent gases and the liquids. These fractions are gases at atmospheric pressure and ordinary temperatures but are readily compressed into liquids and easily handled in tanks. A number of compounds appear in this series, but the two having demonstrated commercial possibilities are butane and propane.

Propane, the lighter of the two, vaporizes at minus 44° F. and has a heating value of about 2,500 B. T. U. per cubic foot or about 92,000 B. T. U. per gallon in the liquid form. It may be used readily in ordinary gas burners with but little adjustment and very little in the way of auxiliary equipment. This fuel is widely used in those areas where regular gas service is not available, particularly in the North Atlantic and North Central states, California, and along the South Atlantic seaboard. It is estimated that there were about 100,000 users in 1930,[27] compared with 20,000 in 1928.[28]

Butane is somewhat more difficult to utilize than propane, and when mixed with the proper amount of air gives a gas about equivalent to manufactured gas in heat content. It is well adapted for use in small systems serving 250-2,500 consumers. Such systems can be installed at moderate costs and are usually very profitable under conditions where manufactured or natural gas service would be prohibitive in cost.

[26] Struth, *op. cit.*, p. 3.

[27] Hopkins and Seeley, *op. cit.*, pp. 310-11.

[28] Setrum, O. M., "Utilization of Liquefied Petroleum Gases by Utilities," 12 *Natural Gas* 79 (May, 1931).

Butane is regarded as having wide sales possibilities in the field of these small systems. There are 2,423 towns of 1,000-2,500 inhabitants and 667 towns of over 2,500 inhabitants in the United States which do not have gas service of any kind. In round numbers they represent 900,000 prospective customers. Many of these towns are too far removed from the main natural gas lines to warrant service or too small to make coal or water gas plants economically possible.[29] That this field offers possibilities for profitable development is shown by the fact that several companies are actively engaged in securing permits for rendering this type of service and many towns are now being supplied.

Liquefied gases are found in many industrial uses such as heat-treating, hardening, annealing, core baking, and similar operations, as well as in ceramics, baking, laundries, and the like. Butane equipment is sometimes used for standby purposes to guard against possible interruptions in service. On a thermal basis, the storage capacity of butane is 136 times that of natural gas stored under 75 pounds' pressure.[30]

While data are available as far back as 1912 for liquefied petroleum gases, the items are not important and were not regularly published prior to 1922 (Table VIII).

In 1929 this product sold at prices ranging from 9.5 to 14.5 cents per pound depending on the distance of the consumer from the source of supply.

Comparative Prices

In the foregoing sections some of the industrial uses of natural gas and the average rates charged for those uses have been presented. It has been noted that in many cases, such as ceramics, heat-treating, baking, kilns, cost per heat unit was not the primary consideration. Cleanliness, controllability, and convenience were more important factors. In the few cases where none of these factors were important, it was noted that the consumer frequently received low rates. In connection with the cost of natural gas per heat unit, aside from its special properties, it would not do to close this discussion without some consideration of the comparative prices charged for the competitive fuels. In presenting this discussion it should be clearly understood that the subject of fuels and fuel efficiencies constitutes a separate problem in and of itself. The examples presented here are intended only to indicate a relationship which exists between coal, oil, and gas, which varies with the conditions involved and which may never at one time be exactly as here presented.

The theoretical heat content of natural gas averages about 1,000 B. T. U. per cubic foot, the heat content of bituminous coal about 14,000 B. T. U. per pound, and the heat content of fuel oil about 21,000 B. T. U. per pound.[31] Using current delivered prices for domestic (actual industrial prices are not available) use in Columbus,[32] and using

TABLE VIII. MARKETED PRODUCTION OF LIQUEFIED PETROLEUM GASES, 1922-30.*

Year	Gallons	Year	Gallons
1922	222,641	1927	1,091,005
1923	276,863	1928	4,522,899
1924	376,488	1929	9,925,698
1925	403,674	1930	18,017,347
1926	465,585		

*1922–29 data from Hopkins and Seeley, *op. cit.*, p. 310; 1930 figures from "Production of Liquid Petroleum Gases Increased in 1930," *Gas-Age Record*, May 21, 1931, p. 427.

[29] Setrum, *op. cit.*, p. 80.

[30] *Ibid.*, p. 83.

[31] "Fuel," *Encyclopedia Americana*, 1927, v. 12, pp. 144-5.

[32] As of December 7, 1931, domestic prices in Columbus were: natural gas, $0.48 per MCF; West Virginia bituminous coal, $7.00 per ton in the bin; and No. 1 grade fuel oil, $0.08 per gallon, or $3.36 per barrel hose-delivered to consumer's tank.

as a basis the theoretical heat content of a ton of good bituminous coal, 28 million B. T. U. would cost as follows:[33]

Natural gas	$13.44
Bituminous coal	7.00
Fuel oil	16.49

In actual utilization of the fuels quite different efficiencies are obtained. Gas and oil are usually found to give comparatively high efficiencies, while that of coal is quite low. In a series of tests under controlled conditions approximating those obtainable with ordinary care, it was found that one pound of natural gas (20 cubic feet) would evaporate 20 pounds of water from and at 212° F., while under similar conditions one pound of coal would evaporate 10 pounds of water, and one pound of fuel oil would evaporate 16 pounds of water.[34] Using the same prices and calculating gas and oil in quantities equal to the effect of one ton of coal, the following prices resulted:[35]

Natural gas	$ 8.96
Bituminous coal	7.00
Fuel oil	14.38

These figures show that in this case coal is the cheapest fuel and oil the most expensive, when considered on a heat content basis alone. In general practice, however, 20,000 cubic feet of natural gas or 3¾ barrels of fuel oil are considered approximately equal to one ton of good coal.[36] On this basis the comparative costs then become:

Natural gas	$ 9.60
Bituminous coal	7.00
Fuel oil	12.49

[33] Computed by applying theoretical heat value of gas and oil per unit to 28,000,000 B. T. U., the theoretical value of a 2,000 lb. ton of coal.

Conclusion

The conclusion to be drawn from these price comparisons is that, when heat content alone is considered, coal is by far the most economical fuel to use. It is unfortunate that exact price data are not generally available covering the coal, gas, or oil contracts of industrial consumers, but it is believed that, while these prices are much lower than for domestic users, the relationships do not differ materially. In actual practice conditions vary widely, so that in many cases the industrial set-up is such that natural gas, and in other cases oil, is the most economical fuel to use.

The wide differences in cost will undoubtedly tend to direct the utilization of the three fuels into the economically profitable and desirable channels. As the companies increase their output and the pipe line companies develop the maximum load over which to distribute their rather high overhead, rates will undoubtedly decline, with many special schedules appearing to secure the more desirable classes of business. Natural gas will then be used in many fields where it is not now deemed economical. In the meantime, a fertile and ample field still remains to be developed in those uses where cleanliness, controllability, heat content, and special chemical properties are at a premium and gross cost is of secondary importance.

[34] Ferris, R., "Natural Gas," *Encyclopedia Americana*, 1927, v. 12, p. 306.

[35] Obtained by calculating per-pound price of each fuel, multiplying coal and oil by a factor to obtain the price of heat equivalent to one pound of gas, multiplying by 1,000, and reducing so as to be on a comparative basis with coal at $7.00.

[36] "Fuel," *Encyclopedia Americana*, 1927, v. 12, p. 145.

II. Commission Regulation of Public Utility Service in Connecticut*

By CLYDE OLIN FISHER

THE Connecticut Commission's handling of service problems in the telephone and water utilities has already been discussed in the preceding issue of the *Journal*. It remains to analyze their attitude and policies toward similar problems in the gas and electric industries.

Gas Service

In addition to its work in the testing of meters to insure their accuracy, the Commission policy as to gas service has been reflected in its decisions as to whether a gas company should continue service at a loss; and chiefly, the determination of questions of extension of gas service to people living in the chartered territory of the companies.

Continuance of Service. In New Hartford an industrial corporation had for a good many years, as an incident to its chief work, supplied gas to a limited number of customers. The property had changed hands and subsequently the new owner gave notice that he would discontinue the gas service which was being supplied at a loss. Customers petitioned the Commission for an order directing that the service be not discontinued.[36] The Commission held that the new owner, in buying the plant, had assumed an obligation to continue the service, if this could be done reasonably and economically, but that it was not practicable to compel a utility company to continue indefinitely to supply a service at a loss. At the hearing the respondent expressed a willingness to give to the town the pipes in the streets and the meters that had been installed, but he would not give a long-term lease on the entire plant. The plant could not continue without a thorough rehabilitation and the cost of this would necessitate, under the conditions, the charge of a prohibitive rate for gas. In view of the failure of the owner, before giving notice of discontinuance, to submit a proposition to the patrons and in view of the reliance of the customers upon the company which had grown out of years of use, respondent was ordered to continue service for 60 days pending negotiations toward a solution.

A follow-up of this decision shows how controversies sometimes peter out or solve themselves. In 1921 the Commission was asked to approve the sale of this gas plant to Landers, Frary & Clark.[37] Shortly after the sale a letter of inquiry addressed to the new owners elicited a reply to the effect that they were not operating the gas plant or even charging rent for it. A group of individuals, presumably the customers, was operating the plant and, as individuals, they did not feel obliged to make reports to the Commission.[38] The Commission did not receive any answer to a letter directed to one of the individuals

*See 8 *Journal of Land & Public Utility Economics* 200–208 (May, 1932) for the first installment of this article. Footnotes are numbered consecutively with those in the first section.

[36] Doc. No. 3392.

[37] Doc. No. 3566.

[38] Letters in Correspondence Files, Auditor's Office, Conn. P. U. Com.

operating the plant and apparently things were left to peter out.

Extension of Service. The most controverted issue in gas service has involved petitions for extension of service to new customers. An examination of four cases will indicate the accepted policy in Connecticut and the degree to which it has been modified by the courts.

Two prospective customers of the Bridgeport Gas Light Company in 1914 asked the Commission to compel the company to extend service to them at the same price as that charged to other residents of Bridgeport.[39] One petitioner lived 735 feet from the nearest gas main and the other 300 feet distant. It was estimated that extension to the first main would cost from $550 to $800. The Commission ordered the extension and, because this was apparently one of the earliest statements of general policy, the reasoning of the Commission warrants examination. Although, said the Commission, there could be no positive assurance as to prospective growth in the section to which service was extended, a reasonable expectation existed that within a short time it would prove profitable to the company. The company had insisted that extension without a guarantee would constitute a discrimination against other customers who had given guarantees for extension of service to them. The Commission held that a company which was earning a fair return was under an obligation to make extensions even though these did not pay from the beginning:

"So long as there is reason to believe that a proposed extension will produce business which will now or shortly show no material loss to the company, the company should make the extension when requested at its own expense and should, itself, bear whatever risk of loss or actual loss may be incurred prior to the extension becoming actually profitable."

The most significant order of the Commission requiring an extension of gas service, an order affecting a whole community, was the subject of litigation which continued from 1916 to 1919 when the order was withdrawn following an adverse decision of the State Supreme Court.[40] In 1916 a number of residents of Maple Hill, in the Town of Newington, charged that the New Britain Gas Light Company had unreasonably refused to extend service to them and requested an order directing that such extension be made. The gas company, when there was a prospect that the railroad company would construct a station for New Britain near this section, had received from the Legislature an amendment to its charter authorizing it to supply gas in the section covered by the petition.

When it became apparent that the railroad station would not be built, the company declined to enter this section of its chartered territory on the ground that the revenue to be derived would not pay for the extension. The Commission ordered the extension, holding that since the company had deliberately secured a charter for the exploitation of this section it was not necessary to show that the new service would pay if the prospects were good for ultimate profit. This community lay in the path of natural growth between Hartford and New Britain and the availability of gas service would accelerate the growth from 80 to 100 customers then awaiting service. But there was no prospect that the new business would pay from the beginning if the usual rates were charged; hence an annual guarantee of a minimum payment of $15 per customer for

[39] Doc. No. 1267.

[40] Doc. No. 1704.

each of the first three years was prescribed. Otherwise, the company was to charge the same rates as its other customers paid.

Thereupon the company appealed from the decision of the Commission to the Superior Court. Justice Case upheld the appeal of the company:

"I think the case disclosed on the appeal and in the finding of the Commission is outside the scope and intent of the act. The legislature was apparently dealing with patrons unfairly discriminated against in occupied territory . . . and not with the compulsory extension of service into new and unoccupied territory . . . If on the other hand section 24 contemplates an action of this sort, the record before me negatives the claim that the gas company has acted unreasonably."[41]

Had this decision been affirmed by the Supreme Court it would have meant a serious curtailment of the scope of jurisdiction which the Commission believed the statute conferred upon it and on the strength of which belief its order had been issued. The Supreme Court, however, did not so restrict the powers of the Commission. On appeal from the decision, the Court upheld the powers of the Commission in the premises but denied the fact justified the extension.[42]

As to the first contention of the company, upheld by the lower court, that the statute limited Commission jurisdiction to patrons unfairly discriminated against in occupied territory, the Supreme Court said:

"The language, so clear, direct and definite would seem susceptible of but one meaning, to wit, that the jurisdiction of the Commission extends to all situations of unreasonable failure and refusal to furnish adequate service at reasonable rates within its chartered territory."[43]

"In view of the purposes for which the Commission was constituted, as indicated by the legislation which defines its power, and the character and fullness of the jurisdiction confided to it, it is impossible to believe that such persons under such circumstances were intentionally left without the right to invoke its aid in the abatement of their real or fancied wrongs."[44]

While upholding the Commission as to the scope of its powers, the Supreme Court did not find that the facts in this case were such as to warrant the order. It said a public service corporation would not be expected to extend service where the prospects of return for many years did not correspond to the costs:

"But it is equally true that its duty in the exercise of rights that are essentially monopolistic in their character will not always permit it to stand by and withhold a desired service within its territory until such time as that particular service promises an adequate return from its inception."[45]

The test in all such cases was to be that of "reasonableness" and in the case at bar the facts developed did not show that the prospects for growth of the section made an order for extension a reasonable one. Therefore, the Court found error and ordered the case remanded for a new trial.

Subsequently, before the lower court had passed upon the facts as directed by the Supreme Court, the petitioners requested the Commission to have the Court enter a pro forma judgment in favor of the company or else to have the Commission rescind the original order. The latter was done by the Commission on May 7, 1919.[46]

The above decision, therefore, represents for the Commission both a partial victory and a major defeat, victory through court sanction of the jurisdiction

[41] Finding in file of Doc. No. 1704.

[42] *Root v. New Britain Gas Light Co.*, 91 Conn. 134 (1916).

[43] *Ibid.* at 138.

[44] *Ibid.* at 139.

[45] *Ibid.* at 143.

[46] Data in files of Doc. No. 1704.

claimed by the Commission, and defeat through the Court declaration that the order in question was not warranted by the facts presented in evidence. From the point of view of effective regulation the most serious aspect of the case is that the Court assumed sweeping powers over questions of fact. It substituted its judgment for that of the Commission as to whether the extension would ultimately be made to pay by virtue of an increase in suburban population. The Commission had based its order upon the facts that Maple Hill was a growing community, that it lay in the path of natural growth between New Britain and Hartford, and that the gas service would accelerate this growth and hence produce an increase in the number of customers. The Court said this was not "definite language" and did not give "adequate knowledge of the future prospects" of the community and the time that would elapse before the extension could be made to pay. It is easy to read this decision of the Supreme Court, given in October, 1916, into an order of the Commission made on November 2, 1916.[47] In answer to a petition for gas extension in this case the Commission said:

> "It appears from the above that the company would be at a considerable annual loss if it should make the extension prayed for. In the absence of any indication of prospective growth of the community and consequent consumption of gas, we do not find that the company has heretofore unreasonably refused to extend its mains and furnish petitioners with gas."

But the Commission, following this decision, did not display an unwillingness to order the extension of gas service where the conditions seemed to justify the cost and where the patrons to be served gave some assurance of protecting the company against loss. In 1920 three families living on Glynn Avenue, in Middletown, asked that the gas company extend its pipe 328 feet to serve them.[48] The Commission ordered the extension on condition that the petitioners finance the excavation and the filling thereof after the laying of the main by the gas company. Presumably, the financing of the excavation by the would-be patrons in this case would relieve the company of loss in supplying the requested service. On this point the decision is not altogether clear.

A review of the gas extension cases directed by the Commission seems to warrant the conclusion that the Commission has inclined to give prospective patrons the benefit of the doubt and to require a liberal policy on the part of the companies, a policy which was changed only in degree and not in kind by the adverse decision of the Supreme Court in the important case cited.

Electric Service

In the electric light field Commission aid has been invoked to secure improved service in communities already served and to secure extension of electric service into new communities. In general, electric light companies in Connecticut seem not to have been so remiss in supplying adequate service, where given at all, as have water companies and transportation utilities. Commission insistence upon good service, where it is attempted at all, may be shown by three key cases.

Inadequate Service. The first instance of this kind came before the Commission in 1912 when patrons of the Housatonic Power Company alleged that electric service in the Town of Guilford was not satisfactory and the rates were excessive.[49] The company insisted that

[47] Doc. No. 2092.

[48] Doc. No. 3397.

[49] Doc. No. 213.

the poor condition of its plant and service was caused by its financial weakness and hence the Commission could not impose upon it burdens beyond its financial capacity to bear. To this plea the Commission answered that the nature of the service was the prime consideration and the financial condition of the company was significant only in so far as it would limit the order of the Commission to the "reasonable requirements of the public." The plant and equipment were declared inadequate and the company was ordered to make a number of specified changes with a view to improvement in the lighting service. These included the replacement of antiquated equipment with improved apparatus and the substitution of meters for the flat-rate basis on which current had been sold.

Apparently these changes did not meet the requirements of customers, as another similar petition was brought to the Commission in 1913.[50] The Commission decided that the service in Guilford was unsatisfactory and the rates excessive for the kind of service rendered, though not necessarily exorbitant if the proper quality of current were delivered. The company was ordered to install permanent improvements for generating, transmitting, transforming, and distributing current under conditions to insure uniformity and full candle power and voltage for lamps and other electrical devices and to protect the patrons from unnecessary interruptions. Further, the company was directed to complete before September 1, 1913 changes designed to remove dangerous conditions on its transmission lines.

Likewise, acting upon complaint of customers, the Commission in 1917 found that the distribution system of the Woodbury Electric Company was not properly maintained and that extensive repairs were needed.[51] To insure adequate service the company was directed to ground all secondary wires, to reconstruct lines to prevent contact between primary and secondary wires, to rebuild its distributing system in accordance with the standards of the Commission prescribed in Doc. No. 1447, to complete this work before July 1, 1917, and then to notify the Commission of the changes made. An inspection by the Commission engineers was to follow.

Extension of Electric Service. The Commission policy in requiring extension of service to new customers has been less uniform than that involving adequate service to those already supplied with current. Its position can be analyzed by presenting first a few leading cases in which extensions were ordered and then cases in which petitions for extensions were denied, together with the reasons for the orders in either event.

A petition to the Commission in 1914 requested an order to the United Illuminating Company to extend its line to residents of the Town of Woodbridge.[52] The company had secured a charter to serve the section in question but did not feel that the revenues to be derived from the proposed line would be sufficiently remunerative. The Commission held that in securing a charter for this section the company had precluded the possibility of service by other companies and that it was under obligation to give service even though the extension might not be profitable. No general rule could be laid down and each case must be decided on its merits:

"In the present instance it is conceded that the proposed extension may not at first, and perhaps never will be a valuable addition to the plant of the company. This fact, however, and the possibility of such un-

[50] Doc. No. 653.
[51] Doc. No. 2164.
[52] Doc. No. 1126.

profitable extensions might have been foreseen by the company when it undertook to secure a charter amendment giving it rights in the Woodbridge territory. The fact that it did seek and secure such an amendment, thus precluding possible rivals from the territory, would justify the inference that for some reason it desired to cover this territory even in face of the possibility of being required to make extensions of doubtful profit."

Since the probable cost in this case would not be badly out of proportion to the anticipated revenue, the company should assume the risk of making it. Some doubt arises as to whether this order, given in 1914, would meet the test of the Supreme Court in the gas case, *Root* v. *New Britain*, decided a few years later and referred to above.

In 1917 the School Committee of Stratford requested the Commission to require the United Illuminating Company to supply electricity to a school building at rates other than those which the company had stipulated. Supplying this service meant an extension of the line.[53] The Commission held that the rapid development of electric use placed upon the companies an obligation to adopt a liberal policy in extensions if this could be done without sacrifice of good service in the territory already supplied. A relationship must exist, however, between the cost and the expected revenue. Hence, the Commission ordered the extension at a lower annual guarantee than that stipulated by the company.

Upon the petition of 14 people to have the Woodbury Electric Company extend service to them in 1920, the Commission ordered the service on condition that the prospective patrons guarantee an annual gross revenue of $1,100 for a period of five years after construction of the line.[54] A like stipulation was made by the Commission in ordering the Rockville-Willimantic Light Company to extend its service into a rural community in 1923.[55] In this case the Commission ordered the extension on condition that for a period of three years the petitioners each pay a monthly minimum bill of two dollars rather than the one dollar generally charged by the company. The reason for this order is indicated by the statement:

"The history of the extension of electricity into rural districts, particularly where it is well populated and the consumers generally lie close to traveled highways, justify the opinion that use of the service in this district will increase after its establishment . . ."

A somewhat different issue was raised in 1923 when prospective patrons of the New Hartford Electric Company petitioned for an additional extension to them in the Town of Canton.[56] In this case the extension had already been made and the return to the company was only 2.7% on the investment. The Commission found that an additional expenditure of $300 by the company would give an annual gross revenue of $120, and thus raise its net return for the entire service from 2.7% to 3.6%. This was ordered in spite of the inadequate return to the company because "the extension is an accomplished fact, and while it has resulted unprofitably for the company, the consequences cannot be undone except at a greater loss." No discrimination resulted from requiring the new customer to pay a minimum bill of $2 monthly for three years because old patrons had contributed toward construction of the line.

In 1924 the Commission ordered the Connecticut Light and Power Company to make an extension in the Town of

[53] Doc. No. 2555.
[54] Doc. No. 3236.
[55] Doc. No. 3959.
[56] Doc. No. 3979.

Seymour when the prospective patrons agreed jointly to pay $846.80 annually for the service;[57] $650 of this sum represented the anticipated revenue from 38 customers and $196.80 a surcharge. No surcharge was to be collected when the annual revenues amounted to $846.80 annually.

In numerous other cases the Commission has directed the companies to extend service, but none of them reveals additional conditions or bases upon which the Commission arrived at its decisions. On the other hand, the Commission has in a large number of instances declined to direct an extension by the companies. The reasoning of the Commission can be seen in decisions in a selected number of pivotal cases. In 1916 the Commission refused to order the New Milford Electric Company to extend its services to a petitioner,[58] even though he expressed a willingness to pay $36.00 a year for a period of five years. Since the extension would cost approximately $1,100 and there was no probability of securing additional customers, the Commission held that to order the extension would be unreasonable. The prospects for adequate return did not correspond with the cost.

A case involving unique arguments came to the Commission in 1917, when the residents of Laurel Beach asked for an order to compel the United Illuminating Company to extend service to beach property.[59] They desired to have the telephone company give permission for the use of its poles, crossing private property, by the electric company. Also, they wished to have the lines go partly underground so as not to spoil the beach scenery. The Commission answered that, in the absence of evidence of a willingness of all property owners, it had no authority to compel the company to construct poles on private property. Also, if the residents desired underground construction, it was incumbent upon them to finance the additional cost entailed thereby. Hence, it declined to grant the request.

A new factor was significant in three decisions from 1916 to 1923 in which the Commission was unwilling to order an extension.[60] In all three cases the Commission found that "the probable cost of extending the line, maintaining the same, and furnishing the required service, would be greatly disproportionate to the probable returns."[61] The unique feature consisted in the expressed willingness of another utility company not having charter rights in the territory in question, but serving contiguous sections, to extend the line into the territory if so ordered by the Commission. On this point, the Commission said:

> "The situation is an unfortunate one. While the Commission would like to see the service supplied, it finds itself unable to aid the petitioners until such time as additional legislation may be passed giving the Commission authority to permit another utility, ready, able and willing to supply the community with the desired service, to enter the territory of the utility having the charter rights therein, and which cannot extend the service except at a cost disproportionate to the probable return."[62]

That the Commission was displeased with this "hogging" policy of utilities which secured charter rights to cover territory, thereby precluding service by other companies, and then failed to make the extensions desired, is shown by one of its recommendations to the Legislature in 1922.[63]

[57] Doc. No. 4398.
[58] Doc. No. 453.
[59] Doc. No. 2429.
[60] Doc. Nos. 1688; 3914; 4039.
[61] Doc. No. 3914.
[62] *Ibid.*
[63] Report Conn. P. U. Com. 1922, p. 17.

"An act empowering the Commission to authorize and permit when practicable, a utility company to extend its service into adjoining territory where no similar utility company has charter rights therein; or when a similar utility company has charter rights in such adjoining territory, but by reason of the isolation of such territory, and remoteness from its occupied territory, it is impractical to extend its service into such isolated territory. Such an act would in certain instances permit of a suburban or isolated community receiving a necessary utility not otherwise available."

Apparently the vested interests of the companies, desirous of holding territory for themselves exclusively in anticipation of a change that will make extensions profitable, have been strong enough to prevent the legislation suggested.

Two petitions presented to the Commission in the latter part of 1930 and decided February 2, 1931 are significant because of the answer of the Commission to a new line of argument by petitioners for service.[64] Both petitions were based upon the same type of reasoning and one of them was carried to the Superior Court and later to the Supreme Court where the order of the Commission denying the petition was upheld.

One Stanley petitioned that the Danbury and Bethel Gas and Electric Light Company be ordered to extend electric service in the Town of Bethel.[65] The facts in this case, as in the subsequent one, were admitted and the decision turned upon the claims as to the obligations of the company. The extension was estimated to cost $2,205 and the prospective revenue from the only customer would be $108, less than 5% on the cost of extension with no allowance for depreciation, taxes, generation of current, or maintenance of equipment. There was no prospect of future development that would make the new line profitable later. Petitioner refused to consider service at a special rate, but insisted that the company was under obligation to extend its service at regular rates to any section of its unoccupied chartered territory upon request. Extension was to be determined not by a consideration of the relation of prospective returns to cost but with reference to the financial condition of the company in its entirety. If the company were earning a fair return on its whole property, it was obliged to make the requested extension even at a loss. In answer, the company contended that each extension must be considered on its merits and that a reasonable return must be expected on the cost thereof; also, the cost of serving customers in the unprofitable areas would discriminate against its customers in the occupied territory by forcing them to pay higher rates to meet the losses elsewhere. The Commission denied the petition:

"In keeping with this development and demand, electric utilities should adopt liberal policies pertaining to the extension of service into new and rural territory. Where there is a reasonable prospect of future development, less than a minimum reasonable return may and in most cases should warrant the company in making the extensions, but a utility is not required to spend its resources for a prospective building development, unless the property owners themselves co-operate in a material way and give substantial assurance that the prospective development will ultimately become a reality."

Furthermore, extensions might be desirable at special rates to be determined by the cost of construction of the line. A policy of extension into unprofitable territory would jeopardize the financial solvency of the company and cripple its capacity to raise capital to serve communities that otherwise could be

[64] Doc. Nos. 5563; 5568.

[65] Doc. No. 5563.

developed profitably. The Commission referred to the decision of the Connecticut Supreme Court,[66] in which the principles governing extension of gas service had been enunciated.

The other case[67] involved the same line of reasoning by petitioner and was decided adversely by the Commission. Thereupon, petitioner appealed to the Superior Court which ruled against him and upheld the order of the Commission.[68] On July 15, 1931, Judge Baldwin said:

"The service that appellant required of the company at the rate of compensation only which he would pay was unreasonable and the company, under such conditions, is not required to furnish such service and its refusal was within its rights and reasonable and the order of the Commission was in conformity with the decisions of the courts and public utilities commissions of the very large number of states having had occasion to pass upon the same question as well as decisions of the Supreme Court of the United States. The appeal is dismissed."

Following an adverse decision by the Superior Court, plaintiff appealed to the State Supreme Court. In the early part of April, 1932 this court affirmed the decision of the lower court in its denial of appellant's plea.[69] In answer to the prime contention of Levitt, that the company was under obligation to serve all people within its chartered territory with no discrimination in rates so long as such policy would not have a serious effect on its rate structure, the Court said:

"A moment's consideration shows that the application of such a principle, at least as applied to a company with charter authority to serve a large rural area, would be impracticable. If the company were under a duty to build extensions so long as its financial or general rate structure was not affected, it could very likely for a time build such extensions as they were requested. But a situation would inevitably be reached when the construction of further extensions would affect its financial and general rate structure. When that situation arose, if its financial or general rate structure is not to be affected, two courses would be open, either to permit the company to refuse any further extension where service upon it considered by itself would entail a loss to the company or at that time to apply the very principle followed by the company in this case, to require of the company thereafter to make only reasonable extensions. The first alternative would be to discriminate between those desiring extensions solely upon the basis of the relative order in time at which their requests were made, and the second would on the one hand, to a considerable extent, make the same discrimination and, on the other, would merely postpone the application of the test of the reasonableness of requiring the particular extension."[70]

The Court held that a public service company was under no obligation to extend service at regular rates except where it was reasonable that it do so; further, it was valid to establish special rates or conditions for service beyond certain limits. In the trial court and also before the Supreme Court, appellant challenged the general rate structure of the company. To this contention the Court answered that mere residence within the chartered territory of the company did not give him an interest in the rate structure such as to permit him to challenge it either before the Commission or the courts.

In the matter of procedure this decision approved the action of the lower court:

"The function of the courts upon such appeals as the one before us is to review the conclusions and decision of the commission and it is not for the courts in the first instance to pass upon the reasonableness of the

[66] *Root v. New Britain Gas Light Company, supra* n. 42.
[67] Doc. No. 5568.
[68] Decision of Court in file of Doc. No. 5568.
[69] *Levitt v. Public Utilities Commission*, 114 Conn. 628 (1932).
[70] *Ibid.*, pp. 631-632.

rates or requirements established by the company furnishing service."[71]

In the matter of extension of electric service, therefore, one can conclude that the Commission has held that each case must be settled on its merits; companies should not be forced to make extensions where there is no prospect of gain commensurate with the cost of investment; but they should assume the risks incurred in the extension into all sections of their chartered territory if the prospects are good for ultimate fair returns or if the would-be patrons assume a fair portion of the unremunerative expenditure. The Commission does not approve the extension of service to rural sections on a "postage stamp" rate basis.

[71] *Ibid.*, p. 634.

Summary

A review of the service cases indicates that the Commission is reluctant to take an aggressive attitude in administration of the law, but rather that emphasis is placed upon its judicial functions. While it looks as though the Commission has a real concern for adequate service to customers and has frequently given orders adverse to the companies, these orders have been of the sort that would be given by a court rather than by a body primarily administrative in its temper. No doubt the adverse decision of the Supreme Court in the New Britain gas extension case acted as a damper upon the vigor with which the Commission ordered extensions in the early years.

Comments on Legislation and Court Decisions

A Federal Court Speaks on Valuation and Rate of Return

THE elaborate opinion of the California Railroad Commission in a case involving the gas rates of the Los Angeles Gas and Electric Corporation[1] was discussed at length in an earlier issue of this *Journal*.[2] The rate reduction ordered by the Commission was immediately enjoined by a three-judge federal court, which has recently handed down its opinion affirming the order and denying the injunction.[3] The Court's opinion was written by District Judge James, with District Judge Jacobs concurring in the opinion. A separate 20,000-word concurring opinion was filed by Circuit Judge Wilbur. These opinions, no less than that of the Commission, are worthy of the attention of all those interested in watching present-day trends in valuation and rate-making.

The Commission had fixed a dual rate-base of $60,704,000 on the investment cost basis and $65,500,000 on the fair value basis, undepreciated, and had prescribed rates designed to yield 7.7% on the former and 7% on the latter. The fair value base was determined, not on the basis of hypothetical reproduction cost estimates, but by "stepping up" actual costs to account for changes in the price level since the time of construction. Intangible costs not actually incurred were rejected from both rate bases. Overheads were limited in both to 6.35%, although it was conceded that the record showed actual overhead costs of 11.25%, on the theory that, since the Company had improperly charged a part of their capital overhead to operation, against the advice and warning of the Commission, and had been reimbursed for these expenditures by the ratepayers, a "quasi-estoppel" prevented duplication of these charges by including them in the base upon which consumers were compelled to pay a return. Going value, for which the Company had claimed an allowance of $9,228,667, was virtually rejected altogether,[4] the Commission pointing out that the cost of attaching business and of organizing personnel, costs on which going value allowances are frequently predicated, had already been paid by consumers in the form of operating expenses. Artificial gas plants unexpectedly retired from service on the introduction of natural gas were included in the rate-base, but the Commission warned that only on the investment cost basis should such "system obsolescence"[5] be amortized

[1] *In re Los Angeles Gas & Electric Corporation*, No. 23102, 35 C. R. C. 443 (1930).

[2] Swidler, Joseph C., "Rate Regulation in California: Some Significant Problems Raised by the California Railroad Commission," 7 *Journal of Land & Public Utility Economics* 1-12 (1931).

[3] *Los Angeles Gas & Electric Corporation v. Railroad Commission*, U. S. D. C. (Cal.), April 8, 1932.

[4] An allowance of $422,866 was made, on what basis it is not clear. However, hypothetical costs could hardly have been given much weight.

[5] This term was not used by the Commission, but was employed in the earlier article on the Commission's opinion (See n. 2 above) to denote supersession caused by a change in the product or service itself, as distinguished from that caused by changes in the method of making the product or of rendering the service.

from income, and that on the fair value basis of valuation "the somewhat doubtful need of all these plants does have an appreciable adverse bearing upon their value." In justifying the 7% return on the fair value of the Company's property, the Commission held that under the fair value rule, lower current cost of money was a consideration in fixing the rate of return. The Court, in affirming the Commission's order, specifically approved these and a number of other rulings of the Commission.

One of the reasons why the Commission's opinion was of great interest was that it offered an opportunity to test whether sentiment in the federal courts on the cost of reproduction versus investment cost controversy has changed. Inevitably public utilities will urge that rate-base which will justify the highest rates, as consumers will urge that base which will justify the lowest. Consistency is hardly to be expected from either side, both having already changed positions once since the case of *Smyth* v. *Ames* when reproduction was less than investment cost, and reproduction cost was therefore urged on behalf of consumers while investment cost was urged on behalf of the utility. There is no little evidence that, with declining price levels, another shift is now taking place,[6] but the dearth of recent valuation cases makes it difficult to determine whether this movement has as yet had any effect on the trend of judicial decisions.

Since, in the Los Angeles case, the Commission fixed both fair value and reproduction cost bases, the problem was not squarely raised. However, it is significant that the Court did not distinguish between the two bases when it said: "It cannot be said that, assuming the reasonableness of the base amount used, the rates prescribed would not produce a fair return." Since on the determination of this question depended in turn the question of whether the return which was approved was 7 or 7.7%, its determination, while perhaps not essential, would have been highly appropriate, and the failure definitely to pass upon it must be regarded as indicative of a more favorable attitude toward investment cost than the federal courts have shown in the past.[7] While the Court was able to avoid deciding the question, the problem may be placed squarely before the Supreme Court should the Company appeal, for the .7% difference in return on the two respective bases may well be determinative of

[6] See, for example, Brown, C. E., "Economic Aspects of Rate Regulation," 18 *American Bar Association Journal* 473, 475 (July, 1932). "If the value of the utility property is the basis for fixing its rates, of course, reproduction value is always important. It does not seem to me, however, that it will be possible to base utility rates on reproduction value in an era of falling prices. The results to the utilities would be too disastrous." The Investment Bankers' Association, in a report reprinted in 98 *Electrical World* 1017 (December 5, 1931) said: "So nearly as possible, a stabilized basis of property valuation should be developed . . . Present deflation of values but emphasizes the disturbing effect of too fluctuating bases of value." And see also Judge William L. Ransom's discussion in 159 *Annals of the American Academy of Political and Social Science* 84, at 90, 91 (January, 1932).

[7] While the majority were not explicit as to their attitude, Judge Wilbur in his concurring opinion dealt at length with the advantages of the investment cost rate-base, and in his final paragraph used the following language indicative of the approval of the Court of this base: "In view of our conclusion as to the ultimate result, we deem it unnecessary to go further than to say that a rate base of $60,704,000 with a return of 7.7% is not confiscatory, *and that neither the base nor the rate is below the minimum allowable to furnish a return that is non-confiscatory*. The same is true of the rate-base of $65,500,000 with a return of 7% thereon. I find myself in concurrence in the main with the reasoning and conclusions of Judge James, and particularly in his conclusions as to the fair rate and rate base." (Italics added.) It should be pointed out that the Court thought the Commission overgenerous in including all obsolescent gas generating facilities in the rate-base, and that Judge Wilbur may have had in mind that the investment cost base was non-confiscatory only after allowing for this error of overgenerosity. The opinions taken as a whole, however, seem to indicate approval of the investment cost base as such.

the question of the constitutionality of the Commission's order.[8]

The method approved by the Court for determining fair value consisted of increasing the actual cost figure by the amount of appreciation since the time of construction. It was contended by the Commission that this method to a large extent avoided the speculative nature of cost of reproduction valuations,[9] against which Mr. Justice Brandeis has so vigorously protested,[10] in large part by eliminating fantastic claims for intangible values.[11] The Commission was fully sustained by the Court, which said:

"The large amounts claimed by the Company for cost of financing, $5,921,470; promoters' remuneration, $2,500,000; cost of attaching business (going concern value), $9,228,667; added 'difficulty' costs, $580,195; we think were properly rejected as for their total amounts. The Company's claim was that these sums should be added to the present investment cost of its property on the theory that in fixing fair value it was entitled to assume an original venture to be promoted and built up over a contemplated period of eight years, saying in effect: 'If we are starting today to develop our business anew, without capital or customers, all of the amounts enumerated would probably be expended.' Basically, the object of an appraisement for rate making purposes is to find the full value of the investment in the business. The investment is represented by the value of the property used and necessary in the business—not what it would cost to promote and establish a like business starting today."

Compare this language with that used by Mr. Justice Sutherland in *Ohio Utilities Co.* v. *Public Utilities Commission*,[12] where the Supreme Court, in holding that it was error for the Ohio Public Utilities Commission to reject an item of $5,000 for preliminary organization expenses from the rate-base of a small utility on the ground that there was no proof of actual expenditure, said: "Reproduction value . . . is not a matter of outlay, but of estimate, and should include a reasonable allowance for organization and other overhead charges that necessarily would be incurred in reproducing the utility." While the Supreme Court has in one case said generally that the cost of reproduction method "does not justify the acceptance of results which depend upon mere conjecture,"[13] it has on a number of occasions approved valuations based on the estimated cost of reproduction.[14] It is by no means clear under these cases that reproduction cost may be determined simply by "stepping up" actual costs, or that a utility may be restricted to a

[8] In *United Railways & Electric Co. v. West*, 280 U. S. 234 (1930), one of the most recent of the Supreme Court cases in which it passed upon the problem of fair return, the Court held that anything less than a return of 7.44% for a street railway would be confiscatory. The Los Angeles Gas & Electric Corporation contended that the return allowed should be not less than 8%.

[9] The Commission in its opinion said: "Regulatory bodies such as this Commission, naturally prefer to deal with actualities rather than theories and assumptions. Actual cost may be determined with a high degree of precision; and the effect upon such actual cost of the simple and single assumption that current prices prevailed during the life of the property may likewise be determined with a definiteness sufficient for the purposes of measuring the effect of higher price levels. It is deemed a much simpler, safer and more dependable guide than estimates based upon rebuilding the property under a hypothetical construction program under conditions which do not and could not reasonably exist and with far-fetched assumptions which make possible almost any result desired by their designer . . . "

[10] Especially in his famous dissents in *Missouri ex rel. Southwestern Bell Telephone Co. v. Public Service Commission*, 262 U. S. 276 (1923) and *McCardle v. Indianapolis Water Co.*, 272 U. S. 400 (1926).

[11] Of the Company's claim of $95,767,351 on the basis of cost of reproduction less depreciation, about $30,000,000 represented intangibles under a hypothetical reconstruction program in addition to those allowed by the Commission.

[12] 267 U. S. 359, 362 (1925).

[13] *Minnesota Rate Cases*, 230 U. S. 352, 452 (1913).

[14] See, for example, *Des Moines Gas Co. v. Des Moines*, 238 U. S. 153 (1915); *McCardle v. Indianapolis Water Co.*, 272 U. S. 400 (1926); *Ohio Utilities Co. v. Public Utilities Commission*, 267 U. S. 359 (1925); *Denver v. Denver Union Water Co.*, 246 U. S. 178 (1918); *Knoxville v. Knoxville Water Co.*, 212 U. S. 1 (109).

return on those intangibles alone which were actually incurred in construction.

As we pointed out in commenting upon the Commission's opinion,[15] one of the most significant holdings was that with regard to the relation between cost of money and rate of return. The Commission held that, when the rate-base reflected current price levels, lower cost of money justified a lower rate of return. The Commission said:

"The present actual annual cost to the company for its bond and preferred stock money is 6.17 per cent. However, just as the assumption that the company's property was constructed at prices now current increases the actual cost figure, so a similar assumption that the company was financed on the basis of current money cost or value would reduce the figure of 6.17 per cent to 5.46 per cent. If the company is to derive the advantage due to economic changes which raise the value of its property over its actual cost, it should at the same time in fairness expect to suffer any detriment due to economic changes which may lessen the cost or earning ability of money."

The Court quoted, apparently with approval although without comment, the second sentence of the above passage. The meaning of this passage is not perfectly clear on its face. One possible construction is that the cost of money is a proper consideration in fixing the rate of return only when the fair value or reproduction cost rate-base is used, and not when the base is investment cost.[16] This construction is belied by the Commission's record in other cases where an investment cost base was used, and changing money costs were given great weight in fixing the return.[17] A more likely construction is that, while changes in cost of money *to the company* are always a consideration in fixing the rate of return, changes in the market price of money, to the extent that they are not yet reflected in the company's own financing because of fixed-rate stocks or bonds, will be considered only if the rate-base has been adjusted to reflect higher commodity costs. It is an interesting speculation whether the Court's unexplained quotation from the opinion of the Commission may be taken as representing such a view of the interrelated character of rate of return and rate-base.

It is interesting to note the emphasis which the Court placed upon the return to common stockholders. While the rates of return which the Commission fixed and the Court approved were overall percentages, one of the important factors in fixing this percentage seems to have been the return on the stockholders' equity.[18] The Supreme Court

[15] See n. 2 above.

[16] Such a position (that is, that only a rate-base which fluctuated with commodity costs justified a return which fluctuated with the cost of money), does not seem supportable. The considerations which make desirable a fixed rate-base are hardly applicable to rate of return. For example, one of the principal merits of a fixed rate-base is that it obviates the necessity of frequent and expensive appraisals with consequent valuation litigation. This factor does not apply to the determination of a fair return fluctuating with the cost of money. As a matter of fact, it is more important that the rate-base should follow the cost of money when the rate-base is fixed than when it is not, for if both were inflexible, changed market conditions might well jeopardize the interests of both investor and consumer. Either the rate of return or the rate-base must be flexible, and the rate of return is far better suited to simple and inexpensive adjustment.

[17] See, for example, *California Farm Board Fed. v. San Joaquin L. & P. Co.*, No. 23589 (1931), 36 Cal. R. C. R. 141, 146; *In re Southern California Gas Co.*, No. 20448 (1928), 32 Cal. R. C. R. 379, 386.

[18] The Court quoted the Commission's statement that dividends on the Company's common stock were paid "of 7.20 per cent per share ($100 par value) in 1916, 1917 and 1918; 7.4 per cent in 1919; 8.4 per cent in 1920, 1921 and 1922; 8.7 per cent in 1923; 33.75 per cent in 1924, included in which is 25 per cent as a stock dividend of $2,500,000; 9 per cent in 1925; 9.815 per cent in 1926; 35.17 per cent in 1927, which includes a stock dividend of 21.42 per cent, or $3,000,000; 15 per cent in 1928, and 17 per cent in 1929. The Company's surplus has grown from $381,212.97 in 1916 to $4,176,663.09 in 1929, while its depreciation reserve increased from $3,804,383.36 to, as said above, $16,804,105.15."

has held that the owners of public utilities are not entitled to speculative profits, but are limited to reasonable dividends.[19] However, the actual return to the common stockholders is frequently ignored, even when the common stock represents only a relatively thin equity, and any differential over the cost of bond and preferred stock money increases greatly the return on the common stock. As Judge Wilbur pointed out, the only reason why common stockholders are entitled to a greater return than bondholders or preferred stockholders is because of the additional hazard in the investment. In the case of many of the large and stable operating utilities, the difference between the earnings on the various classes of securities undoubtedly overcompensates the common stockholder for such hazards. While the Supreme Court has never approved a specific limitation on the rate of return for common stockholders, the actual return to such stockholders seems to be an eminently fair consideration in fixing an overall rate.[20]

This case raises more important questions in utility law than any since the Chicago Telephone case,[21] and it is to be hoped that it will be appealed so that the Supreme Court will have an early opportunity to pass upon these questions.

JOSEPH C. SWIDLER

[19] *Dayton-Goose Creek R. R. v. United States*, 263 U. S. 456, 481 (1924).

[20] One of the few Commission opinions in which rates were fixed with primary reference to the dividend rate on common stock is *In re Wisconsin Telephone Co.*, 2-U-35, Wis. P. S. C., June 30, 1932. In that case the Commission entered a temporary order reducing the rates of the Wisconsin Telephone Company by 12½%, estimated to yield 6% dividends on common stock after the payment of interest and fixed dividend requirements. However, the Commission built up an elaborate record, too full even to summarize here, as justification for its action.

[21] *Smith v. Illinois Bell Tel. Co.*, 282 U. S. 133 (1930).

The Interstate Commerce Commission on Depreciation Accounting

THE entire controversy between the railroads and the Interstate Commerce Comission with respect to depreciation accounting was brought to the fore again on September 9, 1931, when the Commission announced its second and revised order requiring the railroads and telephone companies to set up depreciation accounts for nearly all classes of fixed and movable property.[1] The present dispute dates back a quarter of a century to 1907, when the Commission first directed the railroads to set up depreciation accounts for their equipment or rolling stock. At that time, the rates of depreciation to be used were left to the discretion of the railroad managements.

In 1920, by section 20 (5) of the Transportation Act, as amended in that year, Congress directed the Commission as soon as practicable to prescribe "the classes of property for which depreciation charges may properly be included under operating expenses, and the percentages of depreciation which may be required."

Pursuant to that section, the Commission, on November 2, 1926, issued an order to become effective January 1, 1928, requiring the railroads and telephone companies to set up depreciation

[1] 177 I. C. C. 351 (1931). The report upon which this comment is based is the Commission's authorized summary published in the *United States Daily* for September 10, 1931.

accounts for their fixed property as well as their equipment.[2] The railroads interposed strenuous objections, and at their insistence the order was suspended for further study.

After five years during which the Commission held numerous hearings and reexamined the entire question, this further order was promulgated requiring the railroads to institute depreciation accounting for 35 road items and 8 equipment items. Like the order of 1926, this order also applies to telephone companies, but since they have been practicing such accounting since 1913, they are not objecting. The railroads are required to submit to the Commission by September 1, 1932, estimates of depreciation which, subject to revision by the Commission, shall be the basis for determining the rates of depreciation.

The present order differs in details, but not in essential principle from the order of 1926. It defines depreciation as

"the loss in service value, not restored by current maintenance, and incurred in connection with the consumption or prospective retirement of property in the course of service from causes against which the carrier is not protected by insurance, which are known to be in current operation, and whose effect can be forecast with reasonable accuracy."

The Commission recognized three methods by which the loss of service value which it calls depreciation can be accounted for, viz.: (a) it may be retired in bulk at the time of retirement; or (b) it may be anticipated and spread over the service life of the unit; or (c) it may be spread over a period subsequent to the retirement. Of these, the first, which is the method heretofore employed by the railroads, may be called the retirement method, and the second, which the Commission now prescribes, is depreciation accounting.

This order requires the railroads to include in their operating expenses, and at the same time to credit to a depreciation reserve, an estimate of the depreciation currently accruing in their property. These charges are to be calculated by the straight-line method on the basis of the original cost of the property. When retirements are made, they will be charged to this reserve.

The railroad companies pointed to the decision of the Supreme Court of the United States in the United Railways case[3] to the effect that, in confiscation cases, depreciation should be computed in terms of reproduction cost as a basis for their argument that their depreciation accounting should be based on reproduction cost rather than original cost. The Commission, however, insisted upon original cost as the proper basis, replying that

"The substitution of replacement cost or present value in determining the depreciation or retirement charge would involve a radical change in the accounting classification. Under such practice the investment account would cease to reflect the costs which it purports to reflect."

The Commission went on to say that

"in the United Railways case, the Court was not passing upon accounting regulations or the authority to prescribe them . . . It is not essential that the accounts should correspond in all respects with the facts which may be controlling in a confiscation case."

As was mentioned earlier, the telephone companies approve of depreciation accounting, while the railroads are unalterably opposed to it. The reason for this difference of opinion is obvious. The telephone business is largely noncompetitive and relatively stable. Telephone companies, with the permission of regulatory agencies, are able to

[2] 118 I. C. C. 295 (1926).

[3] *United Railways and Electric Co. v. West*, 280 U. S. 234 (1930).

maintain their rates at a level sufficiently high to pay all operating expenses and a fair return in addition. Obviously, then, it is to their interest to include in their operating expenses, and thus in rates, all charges necessary to reimburse them for the wearing out of their property. The railroads, on the other hand, are subjected to severe competition and a highly fluctuating volume of business. These facts, together with the rate policies of the Commission, have made it impossible for the railroads to show what is recognized as a fair return on their investment, even in prosperous times. The Commission has given no reason for believing that rate increases would be permitted to cover the depreciation charges. Therefore, the railroads see in this nothing but a method by which their already small return will be earmarked and put beyond their reach for the payment of dividends, etc.

It must be remembered that all this is only a matter of accounting. No money is taken out of or poured into railroad treasuries by the process. Nor are the railroads required to equalize expenditures for maintenance and replacements from year to year. Such actual expenditures may be increased in prosperous years and decreased in years of adversity. The Commission's position, however, is that depreciation, wear and tear, goes on year after year with little regard to prosperity or depression, and that, since the sole purpose of accounting is to show the facts, the fact of depreciation should be recognized. To an outsider this point of view seems reasonable. If the railroads have any legitimate complaint, it goes to the rate policies of the Commission and to the competitive situation, rather than to this accounting order.

The argument with which the railroads have supported their opposition is that when an extensive property, such as a railroad, has been established for a number of years, its retirements tend to equalize themselves from year to year, making a depreciation reserve unnecessary. The Commission answered this argument with the pointed suggestion that

> "the contention that the retirements of most units of a large composite railroad or telephone property tend to equalize, i. e., become the same in amount from year to year, is not adequately supported by data of record. The evidence indicates that the opposition to depreciation accounting is based partly on a desire to avoid an equalization of retirement expenses. . . . If a company has an expanding business, depreciation accounting will produce somewhat greater charges to operating expenses than will be produced on the average by retirement accounting."

It is probable that the misgivings of the railroads have deeper roots than their disapproval of a single accounting order. As pointed out above, the railroads have been practicing retirement accounting; that is, they have ignored the depreciation in any item of property until the time for its retirement arrived. This means that on all property which is not entirely new, there is some accrued depreciation, some loss of service value which has not been charged to operating expenses nor reflected in the accounts. Now, when the Commission requires a change from retirement to depreciation accounting, retirements made in the future cannot be charged to operating expenses. And since, under the law as laid down by the Supreme Court[4] and expressly recognized in this order, present patrons cannot be compelled to pay for depreciation which has accrued in the past, the railroads will not be permitted to make their future charges to operating

[4] *Georgia R. and Power Co. v. Railroad Commission*, 262 U. S. 625 (1923).

expenses and credits to the depreciation reserve large enough to take care of the depreciation already accrued. Under these circumstances, it seems that such accrued depreciation will have to be charged to the profit and loss account.

The railroads, therefore, regard this order as a step in the direction of paring down their property investment account. It must be remembered, however, that in 1913 Congress directed the Commission to make valuations of the railroads for rate-making purposes and to determine and report, among other things, cost of reproduction less depreciation. In carrying out this mandate, the Commission has consistently required the deduction of accrued depreciation calculated on a straight-line basis.[5] For instance, the Bureau of Valuation has estimated the cost of reproduction new of railway property as of December 31, 1930, at $28,056,475,952, at prices prevailing in the period ending with 1930. About 20% ($5,786,000,000) was deducted for accrued depreciation, leaving the figure for cost of reproduction less depreciation at $22,269,536,110. As against this, the railroads have a property investment account of over 26 billion dollars, and seek valuations for rate-making purposes at a much higher figure under the cost-of-reproduction theory.[6] The probable effect of this order, so far as it relates to the property investment accounts and valuations for rate-making purposes, will be to bring the values expressed in the accounts more nearly in line with the values found by the Commission, by the write-off of accrued depreciation.

MARY LOUISE RAMSEY

[5] See *Valuation of Texas Midland Railway*, 75 I. C. C. 1 (1923).

[6] Exhibit filed by Bureau of Valuation, *Ex parte 103*, Fifteen Per Cent Case, 178 I. C. C. 539.

Book Reviews

Ford, George B. BUILDING HEIGHT, BULK AND FORM. *Cambridge: Harvard University Press, 1931. pp. xxviii, 188. $3.50.*

The subtitle to this book is "How Zoning Can Be Used As a Protection Against Uneconomic Types of Buildings on High-Cost Land." In this reviewer's opinion it might better have been called, "The Facts About Relative Public and Private Interests in the Improvement of High-Cost Land."

Such an impartial study certainly has been needed. For a decade controversy has flourished between a certain school of city planners and proponents of zoning on the one side and the downtown propertied and speculative interests on the other. It was an intensely practical controversy because the zoning movement and a great building boom were simultaneous arrivals. But, oddly enough, it was conducted rather badly on both sides and, even more oddly, each side advanced and relied upon arguments which were in fact antagonistic to its real objectives. The city planners, unconsciously influenced by their study of Haussmann's Paris and other European forms, acted as though the skyscraper were an evil per se to be limited in every possible way. Business common sense instinctively discredited this line of thought and simultaneously European critics arose to proclaim the skyscraper a new architectural form and America's contribution to the art.

Propertied interests, on the other hand, failed to analyze the question in terms of stability and long range influence upon values. "The bigger the building we can put on it, the more our land is worth," they maintained; "why should we be forced to suffer restriction?" This reasoning was all very well if the reasoner followed it up by proceeding to sell out. But if he held on, it proved a boomerang. For the larger each new improvement, the sooner the saturation point in the supply of office space (that unsuspectedly inelastic commodity) and the sooner would their existing buildings be overshadowed (both literally and figuratively), darkened, out-moded by the "maximum developments" erected under the liberal terms of the zoning ordinances which these property owners had struggled to secure.

Interested controversy having failed to bring the problem nearer to a solution, the late George B. Ford undertook to attack it through the collection and analysis of facts. This book, completed after his death by his collaborator, is the result. Any review of it must pay tribute to his objectivity, fairmindedness, and practical approach.

Certain skyscraper shibboleths, such as congestion, and fire hazard, he disposes of, if not once and for all, then certainly in relation to present conditions. His discussion of the financial and economic elements in the problem is accurate as regards the boom period; its revision in the light of today's conditions would be an interesting subject for further study by such an organization as the Harvard School of City Planning or the Institute for Economic Research. It is odd that the text contains no hint that the financial methods and inflation of valuations which formed a part of the typical speculative set-up were unsound. Even if Mr. Ford drafted this portion before the days of reckoning had come, plenty of informed people could have enlightened him.

In fact, this is but one, although the most conspicuous, instance of a characteristic of the book which is plain to a reader who is familiar with the practical problems at issue; while the writings of various building operators are quoted and analyzed, yet the points involved have not been discussed closely with practical men. If they had, plans and analyses of actual buildings, for instance, might well have supplemented and even supplanted some of the interesting but theoretical, illustrative designs on pages 164-179. And there might have been an analysis of the ratio of rentable to cubic feet (the touchstone of efficient design) possible under various zoning ordinances, both actual and as suggested by the author.

Academic students of applied economics are prone to overlook the mass of semiformulated and often inarticulate generalizations in the minds of practical men in the field and develop theories of their own which,

while logically sound, are likely to involve undue consideration of certain factors and undue neglect of others. But such a homily really does not belong in this review, as the book in question honestly seeks to avoid this failing.

The analysis on pages 34-35 of the building height, etc., limitations of various cities indicates that "no towers" are permitted in Chicago. This is an extraordinary blunder, as anyone who looks around can see. Apparently the authors were unaware of the existing zoning ordinances passed in 1923. Equally, then, must the book have been written without any consideration of the effect of this ordinance or of the many important buildings erected under it. This is a little like the European visitor who gives his "impression of America" to the reporters as he lands at the Battery.

The book is a valuable and sound study. The pity is that it could not have been issued before, instead of after, the real estate bond houses had sowed their crop of dragons' teeth.

GRAHAM ALDIS

Cabot, Philip, and Malott, Deane W. PROBLEMS IN PUBLIC UTILITY MANAGEMENT. Second Revised Edition. *New York: McGraw Hill Book Co., Inc., 1930. pp. xiv, 632. $4.*

A review of the first edition of this book appeared in the August, 1927 issue of the *Journal of Land & Public Utility Economics* and covered in detail the organization of the book and many of the cases to be found in the present edition. The Second Revised Edition, however, is a distinct improvement over the first. The section on "Marketing" has been considerably enlarged and recent case material representing present trends of thought and methods has replaced the older cases. The sections on "Characteristics of a Public Utility" and "Valuation, Depreciation, and Fair Return" have been correspondingly shortened. For the student of practical management problems these first two sections might even be entirely eliminated.

The section on "Marketing" is divided into two parts: (1) "Wholesale Competitive Field", and (2) "Retail Domestic Field." The cases selected illustrate both the pricing or rate-making problems and the selling of the service or merchandising methods of public utilities. The material is interesting and instructive and illustrates the most recent approved methods in solving these problems of management. The present business depression has pointed out the importance of the marketing problem, particularly in public utilities where large fixed costs predominate. The authors have emphasized these problems rather than the administrative or engineering problems of management.

Problems of management organization in public utilities do not differ fundamentally from those of other industries. However, the economics of production and distribution is the backbone of the industry and determines many of the limitations of management. The section on "Production" should logically have preceded, rather than followed, the section on "Marketing" and should have included problems of distribution as well. Management, in its necessity to control costs, must understand the behavior of those costs which are in turn based upon the economic limitations of the technological developments in the industry. Lack of such case material leaves the student without any yardsticks by which the efficiency of operation or management might be measured. Such limitation in the scope of the book limits its use accordingly.

The case method of teaching practical management problems has many advantages. The present volume is valuable as a source of material for classroom discussion.

H. ZINDER

Babcock, Frederick M. REAL ESTATE VALUATION. *Ann Arbor: University of Michigan Business Studies, 1932. Vol. IV, no. 1, pp. 80. $1.*

The following review is a digest, not an appraisal, of Mr. Babcock's work.

The inadequacy of appraisal methods is apparent on all sides. Valuation with a high degree of accuracy is impossible. Sound procedure has not been worked out and data required for correct valuation estimates are not available. There are few highly trained appraisers and some of these are inclined to misrepresent, if the fee is dependent upon the result. Public confidence has been shaken. New and better valuation methods are necessary.

In the United States, we appear to be passing from an era of expansion to a period of stabilization. Large population movements, which have had a tendency to cause

an increase in the value of both urban and rural real estate, have been discontinued. In the future, therefore, some sound thinking and research will be necessary in order to make appraisals with any degree of accuracy. Increases in value in one section will usually be at the expense of some other area. The old school, which believed that real estate would increase in value, regardless of its location, has passed away. It is absolutely necessary to have better valuation facilities. These facilities should include: (a) a sound technique; (b) a fund of valuation data; (c) a corps of highly trained valuators, who are specialists; (d) an arrangement whereby the property is protected against misrepresentation; and (e) a development of an honorable profession.

Methods of appraisal must take into consideration the purposes for which they are required and types of properties to be appraised. A classification of the purposes includes: (1) determination of prices in connection with transfers of title; (2) description of the security and the determination of its amount when property is pledged to insure performance of an agreement; (3) determination of fair compensation; (4) examination of the soundness of a program of property utilization; (5) assessment of properties as a basis for taxation; (6) discovery of facts or the determination of approximate facts for use in connection with the management or operation of property.

Properties to be appraised may also be classified according to the kind of owner, form of ownership, character of the anticipated return, and the use description of the property. The first three of these classifications affect the method of valuation and the fourth indicates the field from which the requisite data must be drawn. By combining the classification of the purposes for which valuation is required and the various kinds of properties to be appraised, we are able to describe every case of valuation problem for which it is necessary to provide an adequate valuation procedure.

It is of extreme importance to distinguish between value and market price. Value is the present worth of the future income of a given good, while market price is an amount which someone may be willing to pay for a piece of property. The two amounts may be very different. In many cases, however, they may be the same. Value represents the price which the purchaser should pay; market price represents the price which he does pay. Methods of valuation commence with a study of the future utility of a piece of property; that is to say, a forecast of the income to be expected in the future. The future income is capitalized at a rate determined in the market by the risk involved. In the case of properties developed to their highest and best use the land receives the residual share from the improved unit. In the case of properties not developed to their highest and best use, the land gets its share first and the building is the residual claimant. If one has a sound method, the accuracy of the appraisal depends upon the adequacy and the reliability of the appraisal data. The data include a wide variety of facts relating to future events which must be forecast. The events cannot be known in advance and, therefore, the appraiser must study the past to predict the future. He must, however, have an appreciation of changing conditions. Sound, rational logic in the process of building the data into an estimate of the value is quite essential.

To reiterate, value is the present discounted worth of the future income. Income may be in the nature of money or it may be in the nature of amenities. Amenities can be interpreted in terms of money because they are bought and sold in the market. When properties have strictly a monetary income they should be appraised by what is known as the income method; that is to say, the future net income should be estimated and this net income should be capitalized at a rate commensurate with the risk. If the income is not monetary but is in the nature of amenities, the comparison method should be used; that is to say, compare the amenities of one property with those of others upon which transactions have taken place. Wherever possible, the income method of appraisal is preferred. The cost of reproduction method should be used sparingly, for cost of reproduction very often has nothing to do with the value of real estate. Churches, public buildings, industrial plants, et cetera, are sometimes appraised by the replacement cost method, because they rarely sell in the market, and because their income cannot be ascertained.

Appraisal deals with the future and no one can predict the future precisely. The best that can be hoped for is a fair degree of accuracy. Appraisals of real estate will be more accurate when we have more sound

thinking and a larger fund of data from which to build an estimate of value.

H. O. WALTHER

Stauffer, William H. TAXATION IN VIRGINIA. *New York: Century Co., 1931. pp. xxv, 309. $4.*

In recent years the State of Virginia has made notable progress in tax reform, and now has a tax structure which is said to ". . . approach the ideal." This book, exhaustive in scope and replete with figures and statistics, gives the results of the reform efforts and describes in detail the taxes now levied by state and local governments to raise approximately $80,000,000 of revenue.

We can note here the progress of several tendencies which are found in almost all our states at present. The break-down of property taxation has resulted in a complete separation of state and local tax sources in Virginia. The local governments now tax real estate and tangible personal property, while the State taxes intangibles and the rolling stock of steam railroads. The local governments, particularly the counties, have been embarrassed financially, and the State has come to their rescue by taking over certain functions and by subsidizing others. The State aids the localities further by dividing certain taxes with them to the amount of about $3,500,000.

The State draws the bulk of its revenues from industrial and business activities and intangible property. The principal taxes which it levies are highway taxes, taxes on receipts of public service corporations, on individual and corporate incomes, on intangible property, and various license taxes. Local governments, as usual, derive the great majority of their revenues from property levies.

Real estate in Virginia bears about 44% of total State and local taxes. This is believed not to be an unduly high percentage in comparison with other states, and actually lower than the average. Taxes on real estate are levied exclusively by local governments. There is the usual fault of unequal and discriminatory assessments, resulting from lack of adequate state control over the assessing process. Values of the real and tangible personal property of public service companies are certified to localities by the State Corporation Commission. The varying rates of assessment in different parts of the State, averaging about 40%, probably result in discrimination against the service companies in this respect. The author states that the Commission attempts to correct for this fact, but he does not explain how.

Public service companies paid taxes in 1930 approximating $9.7 million. Local governments received about $5.2 million as property taxes, while the State collected about $4.5 million, mostly in the form of gross receipts taxes which range from 1.125% to 1.65%. In addition to these taxes motor vehicle carriers, through a rate of 1.5% on gross receipts and a tax on weight, paid over $241,000. The author concludes that the tax burden of public service corporations is lighter in Virginia than in most states, and that ". . . few States possess systems more logical than that found in Virginia."

For completeness and statistical detail this is probably one of the most thorough studies of state taxation made in recent years. The many statistical comparisons, ratios, and analyses are evidence of an enormous amount of research and careful study. The mass of figures and details, however, tends to confuse perspective and makes the style choppy and tedious. The average reader would wish that the author had devoted more space to the connected discussion and interpretation of data.

In a few places the reader gains the impression that the tax system of Virginia is being presented in an especially favorable light by the selection and arrangement of material. This is noticeable on pages 86, 135, 173, 179, and 284. Throughout the study comparisons are made with the situation in other states as the standard, but on page 284, when such a comparison results unfavorably to Virginia, it is stated that, "This, however, is not necessarily the basis upon which to rest the judgment."

The author is to be congratulated on the completeness with which he has covered the tax situation in his State. In addition to description and exposition, he offers a number of sound and pertinent suggestions for improving the tax system and increasing revenue. It is to be hoped that similar studies will be made in other states.

B. U. RATCHFORD

Book Notices

Laidler, Harry W. CONCENTRATION OF CONTROL IN AMERICAN INDUSTRY. *New York: Thomas Y. Crowell Co., 1931. pp. ix, 518. $3.75.*

On the assumption that the Wall Street crash of 1929 marked the conclusion of the third period in the history of industrial and financial consolidation in American industry, the author attempts to give a cross section of the extent of industrial concentration in America today. After an historical sketch of the development of "Big Business," a description is given of the concentration found in our natural resource, public utility, manufacturing industries, and in financial, marketing, and agricultural activities. Thus far the work is purely descriptive and no effort is made to present an analytical or theoretical study of industrial trends.

In Part VI, however, the reader is enlightened by the general considerations and interpretations of the author. Here the inadequacies of the federal trust policy as expressed in the Sherman Act and supplementary legislation are pointed out. Concentration is seen to be increasing; the old days of individualism are gone. Public utility regulation by state commissions is also considered to be ineffective because of (1) the ease with which the law may be evaded through the holding company or other devices; (2) bewildering federal court decisions; (3) failure of commissions to take the initiative in protecting consumers; (4) the understaffed condition of most commissions; (5) the desire of many commissioners to become prominent in public utility fields after expiration of their terms of office; (6) lack of representation for the public in matters of financial importance to them in connection with merger proceedings; and (7) the development of a judicial attitude on the part of the commissions. The last mentioned criticism is based upon the mistaken assumption that the commissions should serve as special representatives of consumers rather than as governmental agencies to insure a square deal both to producer and to consumer.

Grave though the dangers of increasing unification of control may appear to be, the author sees a ray of light. The socialization of industry will be simplified as a result of these recent developments and many of the old and stock arguments against socialism are being disproved by the very activities of "Big Business."

JOHN W. BOATWRIGHT

Grant, Eugene L. PRINCIPLES OF ENGINEERING ECONOMY. *New York: The Ronald Press Company, 1930. pp. xiv, 387. $3.75.*

According to Professor Grant's exposition in this volume, principles of engineering economy are set forth in terms of costs. The real difficulty in solving problems in engineering economy lies in accurately defining the costs which are affected by alternative decisions. All possible electives must be considered. The questions, "Will it pay," "Why do this at all," "Why do this now," "Why do it this way," are pertinent in every decision. Their answers involve "an engineering cost study or economy study; that is, the costs (and revenues) involved in any decision must be first defined and then analyzed."

For those readers who have studied the fundamental principles of engineering, and have a substantial background in the requisite subjects of accounting and statistics, Professor Grant's text on *Engineering Economy* is of value in estimating future costs. For such purposes, a study and interpretation of past costs is of primary importance, and here lies the main theme of economy.

Students of public utilities will find in the book interesting and pertinent sections, such as those on depreciation, valuation, etc., and also numerous illustrations from cost problems of public service industries. The economies of maximum capacity, as emphasized by the author, are of particular importance in the public utility industries. The most advantageous load, plant, and capacity factors can be obtained only by careful engineering analyses.

Simple, explanatory, yet detailed problems are scattered throughout the text, making each branch of the subject readily understood. Definitions are concise, yet

clear; tables, charts, and graphs are numerous; both text and chapters are well indexed, and a selected bibliography is appended to many chapters. A final section is devoted to review problems, which are designed primarily to emphasize the principles set forth in the text.

J. H. SNYDER

Kaplan, A. D. H. HENRY CHARLES CAREY: A STUDY IN AMERICAN ECONOMIC THOUGHT. *Baltimore: Johns Hopkins University Press, 1931. (Johns Hopkins University Studies in Historical and Political Science, xlix, 4.) pp. 96. $1.*

"Who 'makes' land in the economic sense —nature or man?" To this question, as Professor Kaplan shows, Carey replies: "Man." The Ricardians, on the other hand, stress the "original properties which the land derives from nature," as against "the artificial properties which it owes to human action," and attach a negligible amount of economic significance to the latter.

Carey's concept of land as a type of produced capital had been anticipated by Daniel Raymond in 1820, and the same idea appears in several American textbooks on economics published in the sixties and seventies of the last century. Land and capital are placed in the same general category by J. B. Clark. Thorstein Veblen spurns the notion that the "original properties which the land derives from nature" determine its economic importance. "All land values," says Veblen, "and land productivity, including the 'original and indestructible powers of the soil' are a function of the 'state of the industrial art.' It is only within the given technological situation, . . . that any parcel of land has such productive powers as it has. It is, in other words, useful only because, and in so far . . . as men have learned to make use of it. This is what brings it into the category of 'land' economically speaking." ("On the Nature of Capital," 22 *Quarterly Journal of Economics* 517 (August, 1908)). Since Veblen and Carey are about as far apart, in their economic philosophy, as it is possible to be, their very similar conclusions with respect to the concept of land are of special significance.

So frequently do we find American economists insisting, in one way or another, that land belongs in the general category of capital that we may perhaps call this the "American concept" of capital. Such a concept seems to have arisen mainly as a result of conditions in a new country, where the process of actually *making* farms is an outstanding feature of the economic life of the nation. Under the very eyes of Raymond, Carey, and Veblen the process was going on. The economic thinking of these economists reflected their environment. The economic thinking of the English economists reflected a very different environment.

It should be noted, however, that while in England the tradition of sharply distinguishing between "land" and "capital" was handed down from generation to generation, in the United States, on the other hand, the concept of land as a type of capital was formulated anew in almost every case. And it was nearly always formulated primarily as a criticism of the English theory. The scant influence exercised by American economists upon one another has been a salient characteristic of the history of economics in the United States down to very recent times. Few American economists ever read Raymond carefully. True, Carey's ideas on land had a certain amount of influence in his own day, on Francis Bowen, for example. But later on, just as American economists who glanced at Raymond's *Thoughts on Political Economy* were likely to be chiefly impressed by its lack of logic, so also they were prone to dismiss Carey lightly on account of his theological reasoning. To poke fun at Carey's childish mysticism has been a favorite amusement among economists for at least a generation past. In emphasizing the more matter of fact aspects of Carey's work, Professor Kaplan has rendered a signal service to the history of American economic thought.

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